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Original Articles

SYMPOSIUM UPON TYPHOID FEVER.

In view of the great amount of comment regarding the presence of a typhoid fever epidemic in St. Louis, the REVIEW has interviewed some of the busiest and most prominent practitioners of St. Louis. The result is herewith given.

DR. R. C. ATKINSON.

IN accordance with your request I herewith furnish you with my views regarding the so-called epidemic of typhoid fever now prevailing in our midst.

Much has been said and written as to the water supply of St. Louis being the cause of the existing prevalence of typhoid fever at this time. Up to this time I have seen no evidence that it is due to the water supply. If it were true, the disease would prevail wherever the water is used. It seems to be localized to some extent, but if all the cases that exist were reported, there would be a more extensive prevalence as to the area than now appears.

Some doctors will not report diseases to the health authorities until they are compelled to do so. Unless bacterial examinations by competent men prove the prevalence of the typhoid bacillus to a considerable extent in the city water supply, there will be no good reason to attribute the present prevalence of typhoid fever to that source.

The section of the city west of Vandeventer Avenue is not as well sewered as it should be. The soil is of a black loam, better fitted for agricultural purposes than for residences. A great portion of the section occupied by the West End, especially that west of Vandeventer Avenue, has been filled before building, on account of the sites being lower than the street after it was made. Especially is that the case along West Pine and Lindell Boulevard. The sewers of Cabanne, Chamberlain Park, and the section west of Hamilton Avenue have never been equal to the demands of proper sanitation.

The River Des Peres is a great open sewer winding like a serpent and scattering its venom far and wide. The West End doubtless feels the influence of this open sewer. An honest report of the condition of our sewers would show that there is a great amount of festering filth in them, which should be removed by flushing. In seasons of heavy rain fall this is done by nature; but after the drought in August and September it requires a very heavy amount of rain to flush them out. They are never flushed by any other conditions, and the amount of water coming into them from daily use is not sufficient to flush out such large sewers containing as they do quantities of filth developed from so many improper sources.

All of my cases of typhoid fever, with one exception, are and have been this year milk drinkers and children. I have never in previous seasons known so great a proportion of the affected persons to be so young. Those I have observed have been from 3 to 14 years of age, with the exception of the one above noted. In no city in America are there so many and such filthy dairies as are to be found in the city limits. These dairies have usually wells and cisterns for their water supply, which, in many instances, receive the drainage of cow yards and polluted ground water. In this water their vessels and utensils are washed; from this water their cows are watered, their milk cooled, and doubtless in many instances diluted.

There are 409 dairies in the city limits. The Health Department informs me that they are generally in a filthy condition. Of these, 272 have city water; 235 have shallow wells; 257 have cisterns. There are 32 that use well water only; 27 that use cistern water only; 241 drain their semi-solid manure and other refuse in the city sewers. The cows get but little exercise; are fed on swill, the worst refuse product of the brewers and distillers, since the brewers ship the more valuable refuse to Europe. The stalls in which these cows stand are about five feet wide, two cows being tied up in one stall. One stands while the other lies down. The cows get but little exercise, in some instances being turned into a lot rarely more than 100 to 150 feet square, which is a very small area for exercise for thirty to forty cows. Herbivorous animals require a great deal of exercise in order to keep healthy. How can milk supplied from such sources be healthy?

Now, while I am certain that many cases reported as typhoid fever are not such, still I know that there are many which exist and are not reported, so it is perhaps as broad as it is long. It seems to me that the germs of typhoid fever, under the present condition of things, such as I have described among the

dairies and in the sewers, having started, ought to bring about a far more extensive epidemic than we have at the present time.

During the first few days of malarial fever only, it matters not what the type, need there be any doubt about the diagnosis? Take the examination of blood, and if it shows the plasmodium, that will illustrate a purely malarial case from the typhoid. The Widal test, while good, is not absolutely reliable. I have had blood tests made and the cases have been reported to me as showing the typhoid reaction. Before the report reached me from the proper authorities the patient's temperature had fallen and convalescence was complete. On the other hand a case, a specimen of whose blood I had sent for examination, was reported as not showing typhoid reaction, and within less than 24 hours of the reception of such report specimens of blood from the same source have been reported from the same authorities as showing typhoid reaction.

I believe that at the present time patients whose temperature curve remains unchanged after complete cinchonization, when diarrhea and headache are present, should be considered typhoid fever cases, and when a blood examination does not show the typhoid reaction it should be frequently repeated.

I think that the daily reports of the fever epidemic contained in the newspapers are calculated to give unnecessary alarm and anxiety; and while I do not believe that the welfare of any community should be subordinated to the commercial prosperity, I think it well to consider that before we make or give ear to sensational reports of epidemics. The fever has only attained slight proportions in St. Louis in recent years, though I believe that so long as we allow dairies to exist in the city limits we are going to be threatened with danger from that source, and I furthermore believe that a most efficient means of protecting the whole city from such disease should be turning on the water into the sewers at stated intervals and flushing out entirely the filth that has been improperly poured into them and remains a source of atmospheric pollution.

DR. BENNO BRIBACH.

IN the extreme southern portion of St. Louis the present endemic of typhoid fever appears to be no worse, both in the number of cases and in the mild type of the disease, than conditions observed here every late summer and fall for the last twenty years. More cases than usual may have been reported to the Health Department from the fact that, since the advent of the Widal test, many cases are now recognized as typhoid that formerly were differently classified. Speculations as to the channel of infection, as a factor of the present spread of the disease in the central western part of the city, are necessarily idle unless supported by bacteriologic proof, and the various opinions, ascribing the cause to the drinking water, the milk supply, to defective sewage, to the low stand of the river, or to meteorologic conditions, are obviously without any scientific value and extremely doubtful as bases for public sanitation.

If the Widal test be the pathognomic diagnostic sign of typhoid, *i. e.*, infection by the Eberth bacillus, then it is evident that for many years we have had the disease prevailing to a much larger extent than generally recognized. The great majority of cases of our autumnal continued fevers, even when entirely free of enteric symptoms and of the so-called typhoid condition, give the positive reaction of the test. These fevers have been variously classified by practitioners as typho-malarial, malarial remittent, bilious remittent, congestive, febricula, simple continued, or as gastric fevers, and their etiology has been the subject of discussion for many years.

In 1880 the St. Louis Board of Health instituted an inquiry among the physicians of the city in regard to their nature; the committee's "Report on an Unusual Form of Fever" was published in the *St. Louis Courier of Medicine*, February, 1881, and inclines to the opinion that the fever was a typhoid, mild in character and devoid of virulence on account of the improved drainage system of the city.

In 1885 I read a paper on "Typho-Malarial Fever" before the St. Louis Medico-Chirurgical Society.* An analysis of 42 cases from private practice led me to the conclusion that the fever was of malarial origin, modified by a second unknown etiologic factor, although I had long before recognized the entire uselessness of quinine treatment. Subsequent observations, and particularly the occasional unexpected occurrence of fatal hemorrhages, intestinal perforation and serious kidney lesions, later on modified my views on these apparently innocent fevers.

In the light of our present knowledge it appears tolerably certain that practically all of our continued autumnal fevers, no matter how mild, are a true typhoid infection. Osler recently stated that among 1,000 cases of typhoid in the John Hopkins Hospital, but a single case of concurrent malarial infection had been demonstrated. Double infection of both malaria and typhoid must occur much more frequently in this section of the country. In the last twelve months Dr. Carl Fisch demonstrated the presence of the plasmodium malariæ in the blood of three of my cases, previously proved to be true typhoid both clinically and by microscopic test. The first case had a violent chill and hyperpyrexia in the second week of a relapse, when in a very low and critical condition, and I have reason to believe that the recognition of the malarial element and the prompt hypodermatic use of quinine saved the patient's life. The two other cases had

*Published in the Courier, August, 1885.

shown a marked exacerbation of temperature on the seventh and fourteenth days of the fever, and a week later, after complete defervesence of the fever, had distinct tertian intermittents, which were promptly arrested by quinine.

This hebdomidal rise of the temperature, and the apparent mutation of the fever into intermittent is frequently observed here, and in my paper previously mentioned I gave this as one of my reasons for considering these fevers as essentially malarial.

In spite of the large amount of testimony to the contrary, a double infection of typhoid and of malaria, and sequent modification of the clinical phenomena of either disease, appear to me to be quite frequent. Clear light on the subject will probably not be had until the rank and file of the profession, at some future time, are "born again of the microscope."

St. Louis vital statistics from 1867 to 1895 show a mortality of 4,860 from typhoid, and 6,427 from "remittent, intermittent, typho-malarial, congestive, and simple continued fevers." It is safe to assume that a very large percentage of the latter were true typhoid.

DR. HOWARD CARTER.

TYPHOID fever is a disease peculiar to human beings. None of the domestic animals being susceptible to it direct transmission from the cow is impossible.

Milk, however, is an almost ideal culture medium for the growth of various pathogenic and other bacteria, and when the water that is used for cleansing the cans or for adulteration is contaminated with typhoid dejecta the milk may become infective and dangerous in the highest degree through the development in it of the germs now recognized as the exciting causative agent in this disease, and which are always present in the evacuations of persons affected with typhoid fever.

The bacillus typhosus does not curdle milk or give any sensible evidence of its presence. Whenever therefore typhoid fever is prevalent it is advisable to boil or to pasteurize all milk, such treatment of it being applicable at all times, whether typhoid fever is prevalent or not.

Freeman of New York has reported 51 different epidemics of typhoid fever originating from or directly connected with a contaminated milk supply. The following indicates the location and date of epidemic and the number of cases in each instance:

Hawick, Aug., 1891;
Christ Church, New Zealand, 1881;
Glasgow, 1882;
Grangemont, Nov., 1882;
Stonechair, Aug. and Sept., 1881, 11;
Clapham, July, 1882, 19;
Cologne, Jan. to July, 1883, 61:
Warwickshire, 1883, 12;
Dundee, 1883, 36;
Gateshead, Feb., 1883;
St. Pancreas, Aug., 1883, 368;
Upsalva, 1883;
Port Jervis, Oct. to Dec., 1884, 128;
Groningen, Dec. to March, 1885, 43;
Shoreham, 1886, 80-100;
Carlisle, March to May, 1887, 23-24;
Mannegne;
Providence, July to Aug., 1888, 86;
Durham, 1888, 12;
Cambridge, Mass., Nov., 1888, 58;
Melbourne, March, 1889, 43;
Sterling, 1889, 40-50;
Leeds, 1889, 20;
Belgrade, July and Aug., 1889, 10;
Svarteborg, June to Sept., 1889, 11;
Waterbury, June, 1890, 41;
Geneva, Switzerland, 1890;
Whitechurch, 1891;
Sutton-Coldfield, Feb. to April, 1891, 40;
Edinburgh, Sept. to Nov., 1891; 63:
Showland, near Glasgow, Scotland, Aug., 1891, 37;
Dundee, Aug. and Sept., 1892, 43;
Nottingham, June, 1892, 7;
Clermont-Ferrand, Dec. to Jan., 1892, 18;
Near Leeds, 1892;
Plymouth, 1892;
Springfield, Mass., Aug., 1892, 135;
Somerville, Mass., 1892, 31;
————, Aug., 1893, 23;
E. near Strasburg, 1893;
Castle-Island, Ireland, 1894;
Montclair, March, 1894, 107;
Bay Head, July, 1894, 15;
Brixton, 1894;
South Lambeth, 1894, 55;
Shettleston, Oct., 1895, 15;
Great Harwood, Jan., 1895, 80;
Stamford, April to May, 1895, 376;
Plumstead, May to June, 1895, 159;
Providence, Nov., 1895, 30.

So much for what has taken place elsewhere. Our concern is, however, whether there exists any causative relationship between our own milk supply and the present epidemic of typhoid fever. I am not aware that any effort has been made to investigate the matter. The following facts are, however, suggestive: One year ago I made a personal canvass of the city, collected and analyzed consecutively 331 samples of milk, which fairly represented the average quality sold in the retail stores. One hundred and seventy-six or nearly 54 per cent. were adulterated with water, while the total number of adulterations reached 321, some samples containing more than one adulteration.

Milk cannot communicate typhoid fever unless it has become contaminated either with polluted water or by reason of carelessness in handling it by persons who are themselves affected or are in attendance upon those who are.

The filthy condition in which cows are usually kept in town dairies may be to some extent responsible for cases of enteric fever, the milk becoming contaminated with the bacillus coli communis conveyed in fragments

of manure and stable litter from the udders and flanks of the cows.

The system of feeding brewers' grains and distillery slop, whatever may be justly said against it, cannot in itself be held responsible for typhoid fever.

In the matter of practical and protective milk regulations St. Louis is fifty years behind the times, and much worse off than if she had no regulations at all. The financial interests of the well-organized local dairymen appeal with greater force to our politicians than the health of the entire community. Is it not about time we were waking up?

DR. G. C. CRANDALL.

THE present epidemic of typhoid fever is of interest because of its occurrence in certain sections of the city, other districts being quite exempt. This fact naturally leads one to think of some source of infection other than the water, and the milk is the special article of food which may readily be contaminated by the typhoid organism. It would be of interest to know the milk supply of every residence where typhoid fever has occurred during this epidemic; this information alone would assist very much in determining whether the milk may be in any measure at fault. It would be an easy matter for all physicians having had typhoid cases to report to the Health Department the source of the milk supply of their patients.

Another observation worthy of note is the average mildness of the epidemic and the few deaths; and, too, occurring at a time of the year when we are usually subject to more or less continued fever, especially the estivo-autumnal type of malaria, there may some time have been a confusion of the two diseases, which in the main would effect to increase the number of suspected typhoids. Several cases of malaria in which I found the plasmodium in the blood have run a rather prolonged course even under energetic quinin and other anti-malarial treatment, with clinical symptoms which might, without blood examinations, be mistaken for mild typhoid, especially during a typhoid epidemic.

I have found the reports of our Health Department very reliable. Two cases of special interest I noted in which the health department reported a positive Widal's reaction, no typhoid being present; one case was suffering from a typical attack of remittent malarial fever, but had had an attack of typhoid five years ago; the other was well at the time of the examination, but had had typhoid six years ago. This occasioned persistence of the Widal reaction, as we see, might sometimes lead us astray regarding a present fever. Widal examinations very early in the course of fever may be negative, while others made a little later may be distinctly positive. I believe examination of the blood very important in every case of prospective continued fever where any doubt of diagnosis exists, and such examinations are made more valuable if evidence of malaria is looked for as that of typhoid.

DR. C. FISCH.

WHILE it is true that in certain cases epidemics of typhoid fever have been caused by milk and other articles of daily consumption, it is at the same time true that all of these epidemics have had more or less the character of localization and limitation. Wherever the spread of this disease assumes the features of invading larger territories, more general causes must be looked for, and there is none that in larger communities is more general than the water supply.

Although the direct evidence of the specific contamination of the water, that is the demonstration of the typhoid bacilli, is very hard to obtain (in only a very few cases this has been really and reliably done), the circumstantial evidences have very often proven to be so pointed and convincing that no other epidemiologic explanation appears possible.

Water polluted with infectious fecal matter is the great carrier of this disease; it is at the bottom of all epidemics, and even of the most endemics (sometimes secondarily, as in some cases where the milk was the direct carrier of the germs). From what we know about the biology of the typhoid bacillus, whose determining (I don't say causative) rôle is established beyond any doubt, the transmittance of the virus by the atmosphere or by sewer gases is absolutely to be excluded.

In a given case it is, for various reasons, exceedingly difficult to give the bacteriologic proof for the contamination of the water. Typhoid bacilli disappear in a comparatively short time from it, so that at the time of examination of a suspected water (which, since the incubation of typhoid may extend to twenty days, amounts often to several weeks after the first cases are observed) none can be found. Their suspension in the water may be so small in quantity that the very limited amount submitted to examination may happen to contain none; and thirdly, the differentiation of typhoid bacilli in a mixture of bacteria is even to-day one of the most difficult tasks of a bacteriologist.

We need not wonder, therefore, if also in the epidemic now present in St. Louis this direct proof will not be furnished; perhaps by a very exact and painstaking investigation, like that conducted by Richard Pfeiffer in two epidemics (*Klinisches Jahrbuch*, Vol. VII., 1898), the source of infection will be discovered, although there is very little hope for it for conspicuous reasons. Meanwhile we have to submit to the torrent of more or less sagacious, although on their face impossible, theories to which such a public misfortune is bound to give rise.

While I absolutely deny that the milk supply of our city, to any great extent, has been a causative factor, I am firmly convinced that our water has been contaminated at a recent time and either inside of St. Louis (this is more probable) or only a little way upstream. Typhoid bacilli do not travel very far unharmed in a river like the Mississippi.

There is one feature of the present epidemic that gives food for thought. If the water is at fault, we should suspect that those classes of people that drink this water in its "pure" condition would be affected most by the disease. But the contrary seems to be the case, the majority of patients being apparently found in houses where all modern means for purification are observed. Either the water theory is wrong or in these houses conditions must obtain especially favorable for the dissemination of the germs. We can well imagine that a few bacilli may be ingested without setting up an infection, while if present in larger numbers they are in a position to assert themselves. Are there any conditions in these houses that would favor their multiplication?

I believe that the conditions are very often given in the filters used in better households. It is surprising to observe the faulty views entertained regarding the efficacy of these filters. While it has ever and again been demonstrated that the majority of filters are only comparatively germ-proof, when kept scrupulously clean, their use for only a few days makes them breeding-nests for bacteria, so that the relative number of germs in the filtered water exceeds tenfold the number of germs in the unfiltered water (there is only one exception to this rule as far as I know). Most people believe they do their full duty by having them overhauled about once a month. In a case with which I came in contact lately, the owner of a princely house, whose son was down with typhoid, expressed his indignation that a bi-monthly cleansing of the filter was considered a neglect of hygienic precaution. Occurrences like these are very frequent, and whoever has examined the rich bacterial flora found in the slimy precipitate of both sides of a filter used for some time can not but think that unfiltered water is more fit for drinking purposes.

In this connection I would call attention to another point, about which for want of full information I may be mistaken. A great number of cases, of which I gained direct or indirect knowledge, were situated in the region of the newly instituted high-pressure supply. All the houses, too, were provided with filters. I do not think it impossible that the greater pressure forced much more organic material and microbes through the filters into the water, thus increasing the chance of infection.

Any epidemiologic discussion remains sorely incomplete in which the so-called predisposing causes are neglected, which finally are the primary causes. Although I believe that the contamination of our water has occurred only lately, in other words, that the determining conditions (the presence of typhoid bacilli) have not been present for a very long period, I think that we ought to bear in mind the enormous climatic changes which we had to undergo this fall—changes that in susceptible individuals certainly may have lessened the power of resistance to infection.

DR. JACOB FRIEDMAN.

EVERY fall we have cases of typhoid fever occurring throughout the city of St. Louis. These cases that have occurred this fall have been more numerous in a particular locality, namely: the locality inhabited by the wealthier class of our citizens; hence the writing up of these cases in our daily journals has convinced the public at large that there has been an epidemic of typhoid fever in the city of St. Louis. My own impression is that there have been no more cases of typhoid fever in the city of St. Louis this season than there were in former seasons.

A great many of the cases which have been reported have been of an exceedingly mild nature, if typhoid at all, and seemed to me to have been more of a malarial remittent fever. The temperature has ranged in the cases that I have seen from 99 to 103½°; there have been very few bowel complications, no enlargement of the spleen or liver, and only in one case have I observed the rose-color eruption that is peculiar to typhoid fever. I think it would be well that all these cases should be treated as types of a malarial fever, at least long enough to determine whether or not the specific remedy acts.

As far as the blood test is concerned, it has been my experience that Widal's test, which, in fact, is the only test we have for typhoid fever, in a great many cases does not determine whether or not the patient has the fever. So, after all, we are dependent upon the clinical appearances for our diagnosis.

As regards treatment, I am inclined to give great credit to Dr. Woodbridge, Detroit, who, if he has done nothing else, has taught us in a measure that this disease should be treated antiseptically; at the same time, I wish to be understood that I believe medicines are absolutely useless, and that I have the greatest faith in the Brand treatment.

DR. R. B. H. GRADWOHL.

FOR the past few weeks the attention of the medical men of this city has been called to the fact that we have an outbreak of typhoid fever. Various attempts to account for the unusual increase in the number of cases of that disease in the city have been made. Some of these explanations are highly unscientific; some of them are very improbable and

only a few have any semblance of reason in them. Before going into a discussion of the probable cause of this outbreak among us, it might be well for us to look over the biologic characteristics of the bacillus typhosus and thereby arrive at some sort of an idea as to what conditions are necessary for its growth and what conditions are inimical to its development. We know that the bacillus typhosus has been demonstrated again and again in drinking water which has become polluted by the alvine discharges from patients suffering from typhoid fever. That it will thrive in water, then, is to be accepted as a fact. Again, we know that it is not a micro-organism which is capable of being transported from place to place and from person to person through the medium of the atmosphere. In other words, typhoid fever is not an "air-borne" disease. Coming now to the theory that the micro-organism of typhoid fever can live in "sewer gas" and that epidemics of typhoid fever often arise by people breathing contaminated sewer gas, as has been asserted by some, we can pronounce that conclusion entirely erroneous and one not founded on scientific reason. We may say in a word, that *per se* typhoid fever has nothing in common with sewer gas, except the fact that people who are continually inhaling that gas are thereby reducing their vitality and their powers of resistance against all forms of infection, and so if these people are infected with the bacillus typhosus, they will yield more readily to its influence than individuals who are in a good environment, speaking from a hygienic point of view.

The disease, in its present visitation with us, seems to be confined to the western portion of the city almost exclusively. The question then arises is, if the water supply is the infecting agent in this instance, why is it that the disease is localized in a certain district, and why is it that the other parts of the city, which are supplied from the same source of water supply, escape from the ravages of the disease? No other explanation can be made than that the water supply of that portion of the town is infected through some leak of the sewer pipes; provided, of course, that the milk supply of that district is not polluted. It may be that the disease is more widely scattered over the city than is now supposed, and that the cases in the other portions of the city are not reported to the health authorities as promptly as are those in the West End.

In this connection it might be well to speak of the differential diagnosis between malarial and enteric fever. We know that in some cases of malarial fever the clinical picture is very much like that of typhoid fever and the general practitioner is often at sea. What still further complicates the picture is that we find the two diseases sometimes in the same individual at the same time. A search should first be made for the plasmodia. We should also perform Widal's sero-diagnostic test for typhoid fever. Thanks to the excellent provisions of the St. Louis Health Department, this test is made by the municipal authorities of St. Louis for the general practitioner, and an answer can be obtained within twenty-four hours from that department, after delivery of the dried blood to them. After a number of trials, I think the utility of the Widal reaction has been definitely decided upon as being unquestionably excellent as a diagnostic measure. In my own experience at the St. Louis City Hospital, where the test is made almost at the bedside of the patient, we have succeeded in nearly every instance in clinching the clinical diagnosis by means of this test.

As for the mixed infection of typhoid and malarial fever, we meet with a diversity of opinion on that score. Osler says that he has met with but one intance of a mixed infection, where the plasmodia were found in the blood and the Widal test positively obtained, in something like a thousand cases, at the Johns Hopkins Hospital. He seems to hold to the opinion that this combination is very rare and not often met with in the region of Baltimore. From my personal experienee in the City Hospital, I would incline to the opinion that here in our Mississippi Valley we meet with that combination much more frequently than is commonly supposed. In no less than five cases I have seen this combination where the diagnosis of the mixed infection was confirmed by the demonstration of the hemameba Laverania in the blood and by obtaining a positive agglutinative reaction according to the Widal method.

Osler says that "a continued fever which resists quinin medication is not malarial." We may amend this statement by saying that a continued fever which resists quinin medication is not malarial alone, but may be a combination of malarial and typhoidal infections.

DR. C. H. HUGHES.

A PART of the reputed typhoid fever is evidently a pernicious form of malarial fever, and some of it is of a mild typhoidal character, with a good deal of malaria in it, what might properly be termed typho-malarial fever. People nowadays develop in their system a condition of malarial blood empoisonment by self-doctoring and drug store medication, using quinin without proper medical judgment, and simply aborting without curing malarial attacks, thus getting their blood in a state of malarial depravity and red corpuscle deficiency. In short, they get malaria in them and do not succeed in getting it entirely out of them, until finally a stage of febrile collapse and nervous prostration comes; a condition of neurasthenia simulating the prostration of typhoid fever with anemia and the malarial plasmodium still in the blood, and blood depravity, nervous prostration and a more or less continued form of fever. Some years ago I characterized this in the medical press as nervous typhoid.

A case of mine to the point now under treatment at the Mullanphy Hospital came to me from

the Indian Territory, suffering with nervous prostration and a history of repeated attacks of malarial fever, improperly fostered by inadequate anti-malarial treatment. She took up her abode with a friend in the western part of the city and developed symptoms like those of walking typhoid. I found no sudamina, no petechiæ, but tender and torpid bowels without diarrhea, extreme prostration, and a temperature a little above normal in the morning, rising to 102°, 102½° or 103° every afternoon. She became so completely prostrated that we* enjoined her from going about and put her in the hospital, prohibiting the use of solid food and giving her the benefit of typhoid therapeutics, namely, predigested food, turpentine and creosote emulsion, and mild creosote and water enemata for the bowels, with surface spongings. This case is now in the fifth week and convalescing, but the fever curve and the prostration and delirium, and the tympanites and subsultus would entitle her condition to be called typhoidal, though there was the lack of sordes on the teeth and the characteristic typhoidal tongue. These latter conditions, however, I consider, where they exist, as the result of omitted nutrition and antisepsis in the majority of cases and neglect of free use of water, mouth rinsings and internally.

Typhoid fever ought to be fed and fed well with blood reconstructive food, though not with solid food. There should be a free flushing of the alimentary canal with antiseptic water. Entire rest should be promptly secured with chloral hydrate, which, if necessary, should be given per rectum. The wet sponging, if sufficiently generous in its application when the fever is up, besides contributing to the comfort of the patient, will help to prevent the formation of sordes. I could not say this case was truly typhoid, though in treatment I gave the patient the benefit of the doubt, quinin and strichnin having been freely given in the beginning without averting the crisis of febrile prostration.

I have full faith in the discrimination of the health authorities, and it must be conceded that there is the usual amount of typhoid fever in the city at present, but not much more than many other cities are having now. I do not think it comes exclusively from the water supply; some comes from the milk and sewers. The Health Board for the past four years has made diligent efforts to secure proper sanitary legislation, but there seems to be a set of opinionated ignoramuses in our city legislature who influence others and secure adverse legislation.

No city of this size ought to furnish unfiltered water or uninspected, impure milk to its people. Legislators who will not listen to the voice of sanative warning on these sanitary matters, ought to be spotted by all intelligent voters. Proper sanitary laws in a great city should secure the protection which every voter ought to seek to demand for himself and his family. A man will fight to protect his home, to defend the flag of his country against the invader; but here is an unseen foe, a pestilence that lurks in the dark. The wise citizen should demand its destruction. The medical profession offer light on the subject, but the city legislation will not accept the illumination. City sanitation should be made a test question in the coming election. All the city water should be properly filtered, and in my judgment the water supply had better be taken from far above the present intake, where only the Missouri River water would be conveyed to the city, and the contamination of Chicago sewage avoided. It would be better even to sink artesian wells far up along the Missouri River and get the sand-filtered water out of the ground and then refilter it before sending it into our city reservoirs.

*Dr. Marc Ray Hughes and myself; the doctor being associated with me in the conduct of the case.

DR. A. R. KIEFFER.

THE present so-called epidemic of typhoid fever does not differ from those which have come under my observation during the past twenty years' practice. There has been a prominent malarial factor in most of the cases that I have treated. This has been demonstrated both bacteriologically and by observing the effects of the administration of quinin. The cause of typhoid fever is undoubtedly conveyed to the system in the food and drink, especially the latter. However, I do not believe that the present prevalence of the fever is conclusive evidence that our city water supply is contaminated with the bacillus of Eberth. The limits of the present infected areas are pretty definite, and do not correspond with the distribution of the water in any of our water mains.

Typhoid fever is essentially an endemic disease. The prevalence of the causative agencies must depend upon the local conditions of the soil. In rural districts, where the water supply of the different families is entirely disassociated, typhoid fever always prevails in districts having definite limitation.

In my experience the area or district is not large. In a city like St. Louis, with so large an area, it is to be expected that local endemics of typhoid fever would prevail in certain portions of the city one year and others in following years, just as they would in a given area in the country. This does not argue that we may be careless in the use of food and water. The local conditions of the soil which favor propagation of the germ render us continually liable to the disease, and nothing but the greatest care on the part of the people will avoid infection. In the present endemic an unusually large number of the cases have been among children, most of the cases running a short and satisfactory course. I have been gratified to know that nearly all of our practitioners are depending very little upon the medication and very much upon the proper management of rest, diet, and measures to reduce the temperature.

In cases where the food is nearly or altogether withheld for a few days, while the alimentary tract is thoroughly emptied by the use of salines, followed by mild intestinal antiseptics, and a careful regulation of the diet, the course of the fever is almost sure to be mild and unaccompanied by delirium and other nervous symptoms. The free administration of food is just as essential after the first two or three days as the withholding of it is while we are cleaning out the intestines of imperfectly transformed food products, the absorption of which aggravates all the symptoms and renders the patient very uncomfortable. The kind of diet must be adjusted to each individual case. If the usual diet disagrees, then predigested foods must be our reliance. Intestinal distention must be avoided, since the intervals for the free action of the heart hinder respiration and in a later stage increase the danger of perforation and hemorrhage.

DR. I. N. LOVE.

ST. LOUIS is having a little more than her usua quota of autumnal fevers this fall; but I am confident there is no occasion for the degree of hysterics that has been indulged in by press, people and some doctors regarding the presence in our midst of typhoid fever and a possible epidemic. In truth there can be no question that, as is usually the case, a large percentage (the majority) of the cases of fever now prevailing are malarial fever of a greater or lesser degree of severity.

Those who do not in the outstart purge freely (if seen early) the victims of fever at this season of the year and then saturate them with quinin, make a mistake; if such a course be pursued the great majority of them will be terminated favorably in from five to ten days, and of course if there be a typhoid infection it will be influenced favorably by the complete early clearing out of the bowel. When these cases are treated from the beginning in a "do-nothing" way (the only remedy used heroically being very cold water, which chills the surfaces and unhappily often checks secretions) the result will be a prolongation of the cases indefinitely and many of them will be fatal.

Of course all of them should be guarded and managed more carefully, with the possibility of a typhoid infection always in mind; for a continued fever is all too frequently interpreted as malaria when, as a matter of fact, it is typhoid fever.

During the past twenty-five years of private and hospital practice in St. Louis and the surrounding country, I have oftentimes observed that too many physicians ignore the fact that typhoid infection may be present in long-continued fevers even though the pronounced typical symptoms are absent. The fact must be remembered that under modern management the majority of the old-time characteristic features of typhoid fever are present in very few cases.

At the same time I am convinced that too many physicians have gone to the other extreme, particularly those who have received their training and hospital experience in the East or abroad.

It took me ten years to unlearn many things with regard to autumnal fevers, to properly appreciate the work of Daniel Drake in the study of this disease in the Mississippi Valley, to grasp and properly weigh the classical records made by Surgeon-General Woodward in his study of this so-called "typho-malarial" fever.

While I believe that the term "typho-malarial" is a misnomer and is often misleading, yet the fact still remains that there are a large class of cases to which this term may be conveniently applied.

The so-called "bilious remittent fevers," malarial infections (which should be promptly recognized in the beginning, thorough prompt purging secured, and free elimination maintained throughout), are a distinct class by themselves.

Again, there are cases of typhoid fever in this Mississippi Valley, and many of them too that are complicated with malaria; possibly in many of them the plasmodium of Laveran is not discovered, but all the same there are large numbers which have been unfavorably affected by atmospheric conditions.

In the country districts profuse vegetation, poor drainage, etc., together with chilling of the surfaces, checks secretions, and arouses conditions of the system to which the term "typho-malaria," however unscientific it may appear, or bilious and malaria, may be applied.

As a matter of fact every successful physician in the Mississippi Valley recognizes that we have "a condition, not a theory, confronting us" here.

So, too, in our cities of the Mississippi Valley there are a large number of people that are unfavorably affected by the decaying vegetation on vacant lots, and sewer gas poison caused either by poor sewerage or in too many cases, as around our Forest Park, by open drains and sewers.

As is well known, the River Des Peres, while it is beautiful and picturesque, meandering slowly as it does through our great park, yet at the same time is an open sewer for an enormous territory north and northwest, a great part of which is our most aristocratic section.

Indeed, during the present so-called epidemic the majority of these cases of so-called typhoid fever are in the territory referred to. Surely, if any one in a large city is able to purchase pure water—Crystal Water, Apollinaris and other pure table waters—it must be the people referred to, yet they are the ones who are suffering from the disease the most.

Of course many of these families have different kinds of filtering apparatus which in many cases accumulate filth as they are used, and pollute instead of purify the water This filth, though typhoid germs

be absent, is certainly not healthful to the alimentary canal, and is an additional factor along with impure air causing the numerous explosions of illness.

Dr. William Osler of Baltimore is probably one of our best authorities on medicine in America, and yet he is at times entirely too dogmatic, too positive, and runs the risk of misleading the profession in the discussion of typhoid fever and malaria.

In a most able address delivered to the New York State Medical Society October 25th, on the "Diagnosis of Typhoid Fever," Dr. Osler presented, in his usually interesting and charming way (leaving out his dogmatism), the following points on typhoid fever and malaria:

"I come now, Mr. President, to the only part of the subject worth discussing at the present moment—namely, the diagnosis of typhoid fever from certain other diseases. To gain time, I pass by acute tuberculosis, which trips us all up at intervals (and I may say I am feeling sore from a fall over it not ten days ago), cerebro-spinal fever, meningitis, typhus, and the other acute infections, to take up the really serious question of the diagnosis of typhoid from the malarial fevers. During fifteen years' practice in the middle region of the Atlantic Coast I have only had too forcibly impressed upon me the strange readiness with which physicians diagnosticate a continued fever as malarial. In this period I do not remember to have seen in consultation, in town or country, a single instance of continued fever diagnosticated as malaria which did not prove to be typhoid fever. I was fully aware—perhaps few men more so—of the widespread existence of the strong delusion on this subject in the minds of the profession, but neither I nor, I think, you who listen to me now were prepared for such a remarkable exhibition of its strength as that with which the late war presented us. The paper of Dr. Vaughan, based on material collected by the commission appointed by Surgeon-General Sternberg, to study the causes and spread of typhoid fever among the troops in the camps of the United States, has been characterized as an indictment of the general efficiency of the men in charge of the camps. A demonstration on a wholesale scale was given of the ignorance in a large number of the members of our profession of essential elementary facts concerning these two diseases. While subscribing to the indictment, I feel that the gravity of the charge is less against the physicians than against those who occupy teaching positions. Who are the men responsible for this widespread error? Professor Dock, of Ann Arbor, who was on duty at the camp at Chickamauga, tells us in a few words. He says: 'It is not necessary for me to defend the army medical service, for what struck me at the camps was the evidence of lack of knowledge of typhoid and malarial fevers in the profession at large. I came into contact with probably from sixty to seventy-five young physicians of a very good class, such as we would take into our hospitals as internes. Most of them, however, had no hospital experience, and very few seemed to have any clinical experience with typhoid.' The fault lies in reality with the system of teaching, which permitted these young men to go out into practice without a thorough knowledge of typhoid fever. Here is the kernel of the whole matter. Looseness of diagnosis is inevitable while we send out members of our graduating classes unfamiliar by daily routine work in the hospital wards with the clinical features of typhoid fever. But this is not the occasion on which to dwell further upon this point, while I bring it up only to place the responsibility for an acknowledged widespread ignorance where it should rest.

"I have on a recent occasion, Mr. President, paid a tribute to the notable contributions on typhoid fever which have been made by three generations of American physicians. I am sorry that I cannot speak in the same warm terms of the present generation in relation to the study of the modern problems of malarial fever. Fifteen years have passed since Dr. Sternberg's paper introduced to us in this country the brilliant work of Laveran, and in spite of the numerous confirmatory researches which have been made in Philadelphia, Baltimore, New York, and elsewhere, the enormous practical gain, namely, that we are everywhere able under all circumstances to determine the presence or absence of a malarial infection, has not been appreciated fnlly by the practitioner at large. One has to sympathize a bit with him—clinical fetishes are given up with difficulty and regret. To many good, easy men it came as a shock, to find that malaria was really a well-defined, easily recognizable disease. Naturally, it was hard to abandon a word like malaria, which carried with it as much clinical comfort as did that blessed word Mesopotamia spiritual unction to the old lady. My sympathies have been deeply aroused by the distress which has been felt in many quarters of this city, where you have been, until recently, with some notable exceptions, heretics of the worst kind. Nowhere, perhaps, has malaria ever covered such a multitude of diverse maladies. I came in contact with it first while in Montreal, a city in which malaria is unknown, so that when our patients returned from the hands of Gotham consultants with the diagnosis of malarial neurasthenia, or of latent malarial abscess of the liver, or of malarial headache of obscure origin, we learned to appreciate the mysteries of paludic infection as existing in the imagination of Manhattan practitioners. I have myself been scolded as too shockingly dogmatic on the subject, as some of you may remember, in a paper read a year or so ago by my friend Dr. Beverly Robinson; but I protest that, dogmatic as I have been, I have not been dogmatic enough. Had the teachers throughout the country been more per-

sistently dogmatic the profession might have been spared the mortifying exhibition of last year. But as for as many of us, so for Dr. Robinson, there is no possible salvation in this respect until born again of the microscope and a prolonged course of study of the genuine disease.

"Two clinical rules should guide practitioners above Mason and Dixon's line:

"1. An intermittent fever which resists quinin is not of malarial origin. [Very strong statement; too strong.—I. N. L.] Infection with the tertian organism, producing quotidian or tertian paroxysms, is the only variety of malarial fever prevalent in the Northern and Middle States. This form of the parasite is peculiarly susceptible to the action of quinin, and even a grain or two daily may suffice to clear the blood within forty-eight hours. [Dr. Osler may well remember that there are many expressions of malaria other than the paroxysms referred to; indeed, they are multifarious. —I. N. L.] The constancy, the infallibility of the action of this drug is one of the most remarkable phenomena in medicine. Our clinical charts of simple intermittents, now numbering many hundreds, may be searched through and through without finding an instance in which the paroxysms were not checked by the use of quinin, and usually within thirty-six or forty-eight hours. [Yes, well-defined distinct malarial expressions are easily met; but the irregular hybrid ones are not.—I. N. L.]

"2. In these localities a continued fever is not due to malarial infection. I am speaking now, remember, of the regions named, in which the estivo-autumnal organism and the graver forms of the disease caused by it are very rare. [In these days of rapid transit, continual travel, intercommutation, etc., these cases may be found anywhere, even in Baltimore, but especially in Manhattan, for everybody goes there several times a year—I. N. L.] For remarkable complexity in the clinical manifestations, for variability in mode of onset, in the course, and in the symptoms, the estivo-autumnal infection takes precedence even of typhoid fever. With a vigilance quickened by repeated surprises, we are yearly made to feel the subtleness of this protozoan Proteus, which rivals "the old sea-tell-truth" of Homer's tale in clinical wiles and sleights.

"So exceptional are cases of continuous fever with tertian infection that they need not be considered, but the estivo-autumnal fever may simulate typhoid very closely. I shall not detain you with any detailed accounts of the differentia, which are fully described in recent works, but I may dwell on one or two points. The fever in malaria from the onset is marked by remissions—hence the term remittent fever—of a grade rarely seen in typhoid until the late stages. Once the fastigium is reached, the fever in the latter presents a remarkable steadiness, the two-hour record may show for several days a variation of not more than a degree. The chart has a "Pennsylvania-Railway-like" directness, in marked distinction to the zig-zag "Baltimore-and-Ohio-Railway" chart of estivo-autumnal fever. The early anemia, with sallow complexion, often suggests the diagnosis, even when other symptoms are like those of typhoid fever.

"It is in these cases that we find the enormous diagnostic value of Laveran's discovery. Unfortunately, the parasite of the estivo-autumnal fevers is less easily recognized in the acute stages than the larger tertian form, and, moreover, it may be very scanty in the circulating blood. To become an expert in the examination of the malarial parasites requires a long and tedious apprenticeship, and there have been illustrated papers published in this country which make one wonder not less at the brazen audacity of the authors than at the gross ignorance of the editors of the journals. I would urge most strongly, particularly upon the young house physician beginning the study, in all doubtful cases to keep well-made cover-slip preparations, which can be identified later by proper methods of staining. The recognition of estivo-autumnal infection of a week or ten days' duration is an easy matter from the presence of ovoids and crescents. Unlike the simple intermittents, the malarial continued fever is more resistant to quinin, and three or four days may elapse before the temperature falls, [Indeed we often here have to persistently plug away with our quinin for weeks.—I. N. L.] and the organisms do not disappear from the blood so promptly; indeed, the crescents and ovoids are remarkably resistant combined with the tertian form.

"Combined infection with typhoid and malarial germs is excessively rare; so rare, indeed, that only a single instance has been met with in the Johns-Hopkins Hospital in ten years among nearly one thousand cases of typhoid fever. [It is frequently met with in the Mississippi Valley.—I. N. L.] When it does occur, quinin readily settles the malarial side of the infection, while the typhoid fever pursues its usual course. It is to be hoped that the pernicious term typho-malarial fever has been banished forever from our nomenclature. [A better term is typhoid fever and malaria.—I. N. L.] Sheltered under it, a fancied sense of security has too often ended in a sad calamity either to the patient or, in the absence of proper sanitary precautions, to the community.

"But after all, in any discussion on typhoid fever the appeal must be made to the hard-worked practitioners of the smaller towns and country districts (in which the disease is now prevalent), who find it very hard, in the conditions of their lives, to take advantage of modern scientific methods of diagnosis. They must rely in great measure on experience and common sense, and to them I would say in conclusion: Learn to suspect typhoid fever, and not malaria,

in every case of fever of six or seven days' duration, particularly if it resists the action of quinin. For too many years you have employed the Anglo-Saxon method of procedure, and in a given case have assumed innocence of anything so serious as typhoid fever until in the onset of some serious symptom the guilt was too evident! It is high time now that you adopt the Gallic usage and regard every case of continued fever as guilty—that is, as a typhoid—until the contrary is clearly demonstrated.

"Two recent works should be on the library table of every physician at this season of the year—Keen's Surgical Complications and Hare's Medical Complications of Typhoid Fever. They will stimulate that personal progressive education which all of us should seek—an education which carries with it year by year, as experience widens, not alone a better knowledge of the clinical intricacies but an ever-ripening wisdom which enables us to be more and more helpful to the pitiable victims of this disgraceful disease."

I would modify the conclusion of Dr. Osler, and "learn to suspect typhoid fever and not malaria in every case of fever of six or seven days' duration, particularly if it resists the action of quinin," unless the case was not seen by you in the beginning of his illness, thoroughly purged and promptly saturated with quinin.

But while suspecting typhoid fever in such cases do not lose sight of malaria and sewer gas and polluted water also as factors independent of typhoid germs (or complicating them). Ten years ago, after three weeks of continued illness in the person of my own child of seven years, all of my colleagues having pronounced positively in favor of typhoid, I was still in doubt. All doubts were removed by the accidental discovery by myself of the fact that my child's bed had its head directly against the register from the furnace, through which had been coming for many weeks (the time being mid-summer and the furnace not in use) filthy, foul air, the result of accumulated sewage in the furnace pit, into which the sewage had seeped from a broken drain pipe (leading from the closets of the building to the street).

In consequence of the cellar being splendidly cemented and supposed to be in a generally ideal condition, the sewage had no exit and had percolated, after a time, into the furnace pit, several feet away.

The supposed case of typhoid fever was in fact a case of "sewer gas fever"—"bad air fever"—"malarial fever," and a very different course of treatment was called for. Much more attention was given to arousing appetite and creating a demand for solid, better food. Extra effort was made to give the child pure air, and, of course, she was promptly removed from the building.

Had the discovery not been made she would unquestionably have died, for she was progressively growing worse. This case illustrates many that have come under my observation.

If Dr. Osler had practiced medicine ten years in the Mississippi Valley instead of in Montreal, in which he says malaria is unknown, he would be a shade more conservative.

Apropos to this question of malarial and typhoid fevers, and Dr. Osler's intemperate attitude, the following from the *New York Medical Journal*, issue of November 18, by Dr. Beverly Robinson is interesting and to the point:

"Dr. Osler writes: 'Two clinical rules should guide practitioners above Mason and Dixon's line: 1. An intermittent fever which resists quinin is not of malarial origin. 2. In these localities a continued fever is not due to malarial infection.' I dissent formally from both these propositions laid down in this absolute manner. [So will the majority of practical and experienced observers—I. N. L.] The reading again carefully of my paper in the *New York Medical Record*, January 15, 1898, pages 73–77, will show the proofs of my position. I beg leave to inform Dr. Osler, as I have tried to do already, that I have had the kind services of several thoroughly competent microscopical experts in my clinical observations. I do not, therefore, consider it essential to be 'born again of the microscope' so as to establish my rights to hold conservative and, I believe, correct views. '*In medio tutissimus ibis!*' Perhaps the microscopes of New York are not so good as those of Baltimore! I am sure Dr. Osler would hardly gainsay the physicians are."

Yes, all up-to-date physicians, no matter how long they have been engaged in practice, like Dr. Robinson, bring into play the service of microscopists and bacteriologists, but many of us find that some of the microscopists and bacteriologists are nearly always successful in finding that for which they look, whether it be the bacillus of Klebs or Eberth, or making the Widal test.

We often find, too, that our cases of follicular tonsilitis, and other distinctly definite mild forms of sore throat, present in the bacteriologist's report the diphtheria bacillus. We cannot too strongly impress upon ourselves that the clinical evidence is, after all, in the majority of instances the thing of primary importance, and the microscope and the test tube are but corroborative, and as a rule not to be taken alone.

During typhoid fever seasons it is well to bear in mind how often marked cases of appendicitis and the accompanying septic fever are mistaken for typhoid fever. After all, the most striking evidence in any given case in favor of typhoid fever is the direct "Pennsylvania Railroad" curve or temperature wave, as Dr. Osler so well observes.

DR. W. G. MOORE.

WHILE we of the medical profession agree that milk and water are the main vehicles for the typhoid fever epidemic, and while they both may be affected at this particular time, the evidence is in favor of the milk infection. First, because of the localization of the cases in a district in which the people who have the facilities for boiling water and the means of informing others of the necessity of boiling it. The other people who are not so prepared, and who at the same time drink a minimum of milk, and that milk not from the best dairies, are completely free from the disease. Another thing, the repetition of the cases to as many as three or four in a given family is evidence to me that the poison is in the same circumscribed or confined form as represented by the proportion of milk to the amount of water used by the resident families.

While I am not satisfied as to the possibility of the transmission of the disease through the medium of the atmosphere, the evidence goes to show that it is not transmitted in that way, but is produced from food and drink. I believe that it is ordinarily severe in type, and that the reason there has not been more fatality up to date is, because it is still too early to make report.

True to its nature, young people have been attacked most severely, both sexes about equally. The eruption is always uniformly present and kidney complications are very frequent. The delirium has seemed to be of a mild kind, and does not depend upon high temperature, some of the most serious delirium being associated with very low temperature. No antiseptic treatment has seemed to be of avail, nor any other treatment, in shortening the duration of the disease. The best antipyretic is a cold bath, which, I believe, materially diminishes the fatality of the disease.

As to the sewage, we take it for granted that all filth facilitates the spread of all disease, of whatever kind, and that the sanitary condition at this time is especially bad.

It has appeared to me that constipation has reversed the rule in typhoid fever, the larger number of patients presenting constipation rather than diarrhea. Nasal hemorrhages are frequent, and those who have doubted the genuineness of the attack have done so in the face of all the symptoms necessary to prove its genuineness, both by Widal's test, the diazo reaction, and the characteristic clinical symptoms.

DR. L. E. NEWMAN.

THE prevalence of typhoid fever in St. Louis during the last few months amounts to almost an epidemic, wherefore we naturally look for the cause of its existence. It is a well-known fact that during the months of August, September and October this disease prevails more than at any other time of the year, and is always worse when the summer has been excessively warm and the rain-fall below the average. In this city many physicians were inclined to believe, even as early as last July, that we would have just such a condition of affairs this autumn, and I for one am not in the least surprised to find it. There is not the slightest doubt in my mind that the cause of this fever does not lie in the drinking water, although it has often been the cause of epidemics in other cities and towns, and it is doubtful if the milk has much to do with spreading the disease.

The condition of the soil, the result of a protracted and very hot summer, without a sufficient rain-fall to wash up the animal and vegetable matter into the possible natural or artificial drains, is more than likely the cause. If the water were responsible for this state of affairs, is it not strange that the poorer class in the crowded districts are not more affected than the more wealthy people residing in the West End, where, as a matter of fact, the fever preponderates?

The poor class drink the water as it comes from the hydrant, whereas among the more opulent we find the vast majority using filtered water from a more or less perfect filter, and a certain proportion of them drinking some one or more of the bottled table waters which are on the market. It is among these that we have found more typhoid than from among any other class.

The same may be said, in a measure, about the milk, which is purchased from the more reliable dealers by the wealthy, who are safe-guarded by having the milk tested, the poor getting milk from any of the numerous smaller dealers whose dairies are so often kept in a manifestly filthy and unsanitary state. Then, again, those, for instance, whose numbers have been in so many instances reduced by death from the disease are the ones whose tables are furnished with the raw delicacies in the way of vegetables, such as radishes, lettuce and celery, to say nothing of oysters, which are doubtless the cause of much of the disease. These delicacies do not adorn the tables of the poor.

The West End is dotted here and there by vacant lots, which are overgrown with rank weeds, which have been rotting for weeks, and it is easy to understand how the disease should spread from this source. Particularly if we take into consideration the not unlikely fact that typhoid fever dejecta may be deposited in these lots at some time or other. Furthermore, the sewage in the West End has been but poorly flushed by rain of late, and hence is bound to contain a semi-fluid decomposing mass, the emanations from which must certainly come through our waste-pipes, no matter how well trapped they may have been, and

thus adds to the likelihood of the infection from this source.

During the late war with Spain much was said about flies being the carriers of the infection in the fever-infected camp about Chicamauga, and doubtless here in the present epidemic they have been a more or less important factor. The late onset of cold weather has permited these pests to live on through these ordinarily cool months, and in this particular there has been some chance for infection to spread. The warm dry summer followed by an equally warm autumn has been the prime cause of typhoid, and it has been kept up largely by the decomposition of vegetable and animal matter which has remained on the ground.

The remedy, or rather the prevention against another such state of affairs, appears to be plainly marked out for us, and this should serve as an important object lesson. Every summer it should be the duty of the health authorities to see to it that all vacant lots are freed of their overgrowth of weeds by cutting them down and burning them whenever and as often as the growth reaches a height of 12 inches. They should further see to it that the sewers are thoroughly flushed during the dry season. All homes should be inspected and the plumbing gone over and the trapping made adequate. Cellars should be kept dry and well aired, as well as occasionally sprinkled with chloride of lime. All drains should be disinfected at least twice a week, with a strong solution of copperas or permangate of potassium.

I lay very little stress upon the boiling of our drinking water, although it is a harmless precaution and may place us on the right side of prevention. The same may be said of milk. Radishes, celery and lettuce should perhaps be left off of our diet list, for the present at least.

Those of us who have lived here for over a quarter of a century remember very well that every time there has been a little more typhoid than usual there has been a tendency to ascribe the cause to the water, and yet I doubt if typhoid bacilli have been actually and positively demonstrated in our water supply. That fever exists to a very great extent here now no one can deny, but there is no doubt that many cases of simple continued fever are being reported as typhoid in order to be on the safe side.

The clinical features of typhoid fever in this as well as other epidemics are as well marked as they ever are, and it should not be difficult to make a diagnosis after having watched a case for a few days. The differential diagnosis requires no examination of the blood and no diazo reaction to determine the existence of the disease; hence in the majority of instances the diazo reaction and Widal's tests are not called for, although the latter is always useful to confirm the diagnosis which we have already made but which we wish to reinforce. One peculiarity about the present epidemic is the unusually long duration in the prodromic period, which in many instances has lasted more than two weeks.

The existence of lassitude and malaise with practically no increase of pulse or temperature, and with constipation rather than diarrhea for ten days to two weeks, has been the rule rather than the exception. Epistaxis has been rare both during the prodromic and active stage of the fever, but it is about the only symptom which has shown a tendency to be persistently absent. The mental hebetude, the delirium, the diarrhea, the rose spots, the gurgling in the right iliac fossa, the tympanites, the subsultus tendinum have all been more or less constant symptoms, but epistaxis seems to have been absent in a remarkable proportion of the cases. Chills have been of frequent occurrence, particularly during the early stages, and hyperpyrexia has been a prominent feature in several cases.

The impression seems to prevail among laymen that the disease exists in a mild form, and that fatal or severe cases are unusual, when as a matter of fact the type of the disease is more severe than it was in 1892, or in fact during any other period in the last fourteen years. So far as the mortality is concerned, that is another matter, and depends largely upon the condition of the patient previous to the onset of the disease, as well as upon the character of the treatment. Many cases may be saved, which would otherwise prove fatal, if they are required to remain in bed from the beginning of the attack, even though it may seem a hardship when the symptoms apparently do not justify it.

In the last four weeks I have had four cases, in all of which the evening temperature has been 105° or over, one of them reaching 106° on one occasion, and 104½° has been no unusual occurrence. Diarrhea has not required interference except in a few cases, as it usually subsides as the disease declines. In one case wild delirium occurred, requiring some physical restraint, which finally was quieted down under the regular treatment, to which bromide of potassium in 20 grain doses every two hours was added. Hemorrhage has not occurred in any of the cases, nor has perforation. Death has occurred in one case. The patient, a woman of 50, with chronic nephritis and sclerosis of the arteries, succumbed to the combination on the fifteenth day of the disease.

The treatment which I am in the habit of administering, and which practically and invariably results in convalescence being established within three weeks, is about as follows:

Whenever the temperature reached 103½° and over, the nurse is ordered to rub the body from head to foot (under the cover) with a lump of ice, keeping this up for 10 or 12 minutes at a time whenever and as often as

the temperature reaches that point. In the last six weeks I have not found it necessary to resort to either the tub or the wet pack. A strict liquid diet, consisting practically of milk with or without lime water, is insisted upon. So far as medicines are concerned, I depend practically entirely upon one drug, viz., salol, in two or three grain doses every three hours from the onset of the disease until the temperature has remained normal morning and evening for a week. This insures antisepsis of the entire alimentary tract and has in my hands proved wholly satisfactory. Stimulants such as whiskey, brandy or sherry wine have been used when great depression existed, and an occasional five-grain dose of ammonium carbonate.

In regard to the use of salol, I find no disagreeable symptoms produced such as smoky urine or depression or decreased secretion, nor by protracted sweats, and yet there is almost invariably a slight fall in the temperature within an hour after the ingestion of the drug. For tympanites turpentine in 10 or 15 drop doses at four hourly intervals, as well as turpentine stupes for painful distention of the abdomen, have been found to be very comforting in those cases in which distention causes great pain and nervousness.

A point in connection with the treatment is the importance and necessity of not interfering too much with individual symptoms, particularly pyrexia, and the administration of many of the coal tar antipyretics should be deplored in consequence of the extreme depression induced by means of them, to say nothing of the prostrating sweats and cyanosis. If let alone, the temperature will generally right itself and settle to its proper curve during the fastigium, although, of course, hyperpyrexia should be controlled actively by either the cold-pack or the rubbing of the body with a lump of ice.

Overdosing is doubtless responsible for much damage in the treatment of typhoid, and disturbances of the stomach are frequently caused by injudicious drugging in the early stage of the fever; sometimes, indeed, inducing an acute gastritis to complicate the already serious enteric fever. Vomiting and pain in the epigastrium are very common in such cases, but may usually be relieved in a few days by the administration of ice together with 20-grain doses of subnitrate of bismuth. I depend almost wholly upon the milk diet, and no patient is supposed to get less than two quarts of milk in twenty-four hours. When depression exists, particularly in the latter stage of the fever, whiskey in half-ounce doses every two or three hours has a wonderfully bracing effect. Quinin has absolutely no effect upon the disease, although in the beginning its exhibition may serve to establish a diagnosis. In all cases of fever influenced by quinin we may positively exclude the existence of malaria, although it does not necessarily follow that such cases are typhoid.

The hybrid or nondescript continued fever, called by many typho-malarial, is most frequently confounded with true typhoid, but in these cases the temperature curve is generally extravagantly irregular, and there is often a difference of two or three degrees between the morning and evening temperature, the former being often higher than the latter.

DR. H. L. NIETERT.

WE have had comparatively few cases of typhoid fever in the City Hospital, certainly no more than usual. A great many of these are a very mild type; but inasmuch as they respond to the Widal test, besides pointing in their clinical signs to typhoid fever, a diagnosis of typhoid fever is imperative. Many supposed cases are cured by quinin; these, however, do not respond to the Widal test.

In every typical case of typhoid fever in the hospital, since I have taken charge, the Widal test has been positive. In every case of suspected typhoid or malarial fever, examination has been made for both Widal reaction and plasmodia. In several instances both were observed. In such cases quinin has relieved them to a great extent. The Health Department tests have been very reliable and have confirmed our own examinations.

DR. THOS. O'REILLY.

NOTHING demonstrates the feebleness of man to overcome the workings of nature than the existence in our midst at the present time of an epidemic fever.

The excellence of this city for sanitary reasons can nowhere be surpassed. It is built on a series of undulating hills which promote to the fullest degree the most perfect system of sewage. For this nature had provided by a series of subterraneous drains before a single effort was made by man to construct an artificial sewer.

The climate is most salubrious. In winter, mild and exhilarating; in summer, balmy and comfortable, with very few exceptional extremes of temperature. Though I have traveled over a large part of Europe, no city has come up to my conception of perfection so closely as this.

Our water supply is inexhaustible and comes from the purest sources. It is derived from the snow-capped summits of the Rocky Mountains and the boiling geysers of the Yellowstone. Before it is distributed to our people it has traversed the almost incredible distance of four thousand miles, parting with any possible pathogenic bacteria and supplying their place by the hygienic conditions imparted to it by sunlight, pure air, and agitation, elements which have been proved to render healthful the most putrid water after traversing the distance, comparatively insignificant, of only fifty miles.

Our milk supply cannot be surpassed in purity, as

[illegible] inspection.

Our Board of Health has adopted every known practical precaution to guard the public health and keep away disease; but in spite of their efforts and in spite of our natural advantages we have an epidemic of fever amongst us. As we can not find in local conditions any cause for it, how is it to be accounted for? In sixty years that I am connected with the profession I have witnessed epidemics of various kinds, but none of them could be attributed to local influences. I am therefore satisfied that they depend on some general atmospheric change which in the present state of our knowledge we can not demonstrate. Their sudden and general onslaught, attacking alike the dwellers on the mountains, the inhabitants of the valleys, the occupants of the palace and the cottage, impartially dealing with all irrespective of local influences, makes me regard as puerile the efforts of some sanitarians who blame the water, the milk, the residue of boilers and other mere local influences for producing an epidemic. These causes are too limited and too constant, while an epidemic is occasional and general. It comes and goes without warning like a whirlwind.

Many years ago while pensively contemplating the gentle swell of the Atlantic Ocean at Long Branch, I was struck by the suddenness with which the color of the water changed to a deep red, until a gentleman companion enlightened my ignorance by telling me it was a vegetable infusiorium called the bacillus prodigiosus which communicates to virgin snow a blood-stained appearance. This bacillus singly is not visicle to the naked eye, but requires a powerful microscope; whereas in the countless billions when it manifested itself suddenly on the ocean, the color of the water looked more like blood. If, as in this case, nature can diffuse a bacillus in such profusion, what is then to prevent her thus inflicting the bacillus of disease? In confirmation of this I give from the history of medicine one of many similar proofs. In September, 1780, the crew of the Atlas East Indiaman consisting of four hundred and sixty men, on their course from Malaga to Canton, were all suddenly seized with influenza, then called Blitzkarr from the suddenness of its invasion. Although there were no cases of the disease in the former place, they found it prevailing in the latter on their arrival. The only way to account for the breaking out of this epidemic disease on the Atlas while she was at sea, is that the same atmospheric condition which caused the disease in Canton struck them though isolated far out at sea.

DR. A. RAVOLD.

I FIND that it is impossible for me to write for the MEDICAL REVIEW an opinion upon the present epidemic of typhoid fever, owing to the serious illness of several members of my family [illegible] home suffering with that dread disease, and who needs my constant attention. This affliction has so unnerved me that I find I cannot apply myself to any task needing concentration of thought. I have been working upon the river water, taking samples from the intake and from various places along the river, also from the Missouri and Illinois Rivers, and am thoroughly convinced from my results of the bacteriologic examination of the samples that the river water is the cause of the epidemic. I have not so far found the bacillus typhosus, but when the river was low it was a very easy task to find the bacillus coli communis in even a few drops of the water at the intake. The bacillus coli communis is, as you know, the normal inhabitant of the intestines of man and the domestic animals. The colon bacilli found in the water at the intake certainly came from human contamination, and not from that of other animals, as for nearly three months not enough rain fell in this immediate district of country to wash manure into the rivers, and the small pollution that could have come from animals standing in streams amounts to nothing. This evidence of human pollution of the stream needed only the addition—the discharges from the typhoid fever cases above the intake to start an epidemic in our city. We are a city of 750,000 inhabitants; each person uses for drinking purposes two quarts of water a day; say one-half of this filtered or taken as beverages, it still leaves 750,000 quarts of water dipped from the river and passed through the intestinal canal of every person in the city every twenty-four hours. Each person is thus experimented upon to ascertain whether or not the bacillus-typhosus is in the drinking water. We have carried out a laboratory experiment on a gigantic scale on human beings, and have discovered from the results that the bacillus typhosus is in the water, although through the limitations of my bacteriologic methods I was unable to find it. There is only one thing that has saved us from even great affliction, and that is the fact that the water before distribution rests in reservoirs twenty-four hours, and thus allows numbers of bacteria to be taken out through sedimentation.

Notes and Items

The following is the program of the St. Louis Medical Society of Missouri, Saturday evening, December 2d, 1899: "Meningitis," by Dr. R. B. H. Gradwohl.

Under the term "repeaters," the *Journal of the American Medical Association* describes what it terms a "reprehensible habit" of some of the contributors to medical literature of reading the same paper

in succession before a large number of societies. To this we would add that a large number of writers who send copies of their papers simultaneously to a number of different journals. This habit is not objectionable, providing the papers are accompanied by the statement that they have been furnished to other journals, and there is an understanding that they are, or may be, published elsewhere. At the last meeting of the Mississippi Valley Medical Association a paper was read which has already appeared in five journals —in all of them under the heading: "Original Communications."

The Alvarenga prize is one of the most important rewards for scientific medical work that is bestowed in the United States. While the pecuniary acknowledgement is only about $180, the prize has been awarded for so many excellent contributions to medical science that it is no mean distinction. The prize was founded by Senor Alvarenga and is under the charge of the College of Physicians in Philadelphia. It is awarded yearly, provided that an essay deemed worthy by the committee shall have been offered. Essays intended for competition may be upon any subject in medicine, and must be in the hands of the secretary of the college on or before May 1, 1900. The award for the present year was made to Dr. R. L. Randolph, of Baltimore, for an essay entitled, "Regeneration of the Crystaline Lens."

An interesting experiment is being made by the British Army Medical Service in the inoculation of the troops now leaving for Africa. The endeavor is made to confer immunity from typhoid fever. The inoculations are not made compulsory, but the officers urge it upon the men. The results of this measure will be watched with great interest, and after the campaign in the Transvaal is closed comparisons based on the prevalence of enteric fever in our late war with Spain and the South African trouble may furnish some interesting data. The most striking instance so far of the preventive value of this method is furnished by the inoculation of the attendants at the Maidstone Asylum; of 200 attendants in the institution, ninety-five were inoculated—not one of these took the disease. Of the remaining 105 not inoculated, seventeen had typhoid fever.

It was reported some time ago that California had adopted quarantine regulations against consumption. This, we learn, has been rescinded, probably owing to the earnest protest of sanitarium and hotel men, as such a regulation would certainly aim at one of the chief industries of the State. The regulations referring to tuberculosis have been so modified that a separation of the tubercular from the non-tubercular patients in all institutions has been enjoined. That this regulation is of much greater importance to public health than quarantine against tuberculosis, no one will doubt. The case in Colorado is somewhat different, and complaint is very bitter of the frequency with which indigent and advanced cases of tuberculosis are sent or reach that State, only to become a burden upon its public institutions.

Late notes regarding the campaign in Africa are to the effect that Sir William McCormac and Mr. Frederick Treves have offered their services. A hospital ship will be purchased and equipped for service in South Africa, the bill to be paid by American women residing in London. The bitter feeling in France against England, growing out of the war in the Transvaal, is but a reflex of that visited upon the Anglo-Saxon in our late war with Spain. *The Lancet*, in commenting upon this, says that if it shall result in a marked diminution of guests at Swiss, Italian and French winter resorts, it will not be an unmixed blessing to home industries.

An interesting point was recently raised in Philadelphia as to the capacity of a person who is insane to act as a juror. Recently a United States Government employe was convicted of bribery, and a new trial was asked on the ground that one of the jurors was insane. A sworn statement from the resident physician of a retreat for the insane was submitted, stating that one of the jurors had been admitted five or six times to that institution within the past ten years, each time suffering from maniacal excitement and auditory delusions. Since the trial the juror has broken down physically. This raises a new point in jurisprudence which we trust will not be so far extended that it will be necessary to prove the sanity of jurors as a part of the record of the case. Only a slight extension of such a principle would result in permitting a review of the general mental capacity of jurors, and would admit claims of stupidity and imbecility. As juries are now drawn, examined, accepted and talked to in court, it would be apparently easy to vitiate any trial.

Professor J. B. Bradbury, in opening the section of pharmacy and therapeutics at the last meeting of the British Medical Association, devoted some attention to the proper place of pharmacology in the medical education. There is a growing tendency to require less knowledge of the properties, composition and natural history of the remedies used in medicine. He thinks that too much attention was paid in former years to the study of minute differences, but the danger is now that the medical student, after he goes out into practice, will not be able to recognize his most frequently used drugs. The tendency of this is to encourage the administration of ready-made tabloids, elixirs, etc., many of which have no official sanction. He thinks that the British Pharmacopeia, so far as it bears on prescribing, should be thoroughly mastered by all medical students and such knowledge should be obligatory.

MEDICAL REVIEW

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TYPHOID FEVER IN ST. LOUIS.

In our original department we present the views of a number of St. Louis physicians with reference to the supposed epidemic of typhoid fever. Considerable difference of opinion is manifested, especially in ascribing the medium of infection, some maintaining that the water alone is at fault, with the covert hint that Chicago is doing it all through her drainage canal. Others lay the blame upon the milk, and still others accuse the milk because it is diluted with water containing the Eberth bacillus, or because the pans and vessels which hold the milk are washed with contaminated water. Not a few claim the milk is wholly blameless, and several put the water in the same category.

On three points the uniformity of opinion is marked, and they are certainly the most important: the determining influence of the bacillus of Eberth, the value of the Widal test, and the absence of an unusual epidemic at the present time. With reference to the last, the testimony of Dr. Nietert, Superintendent of the City Hospital, must be quite conclusive, for an epidemic cannot exist without reflecting its influence on the City Hospital.

The belief in an epidemic of typhoid fever was in all probability inaugurated by the fact that several members of prominent families succumbed to the disease about the same time, and quite a few additional cases in the same circle were reported, though no fatality had resulted. All this was generously advertised with the usual results.

In addition to this, St. Louis has been going around with a chip on her shoulder, which the slightest whiff from the Chicago Drainage Canal would knock over. Add to this the well-known fact that St. Louis water is notoriously muddy, and that all metropolitan milk is looked upon with suspicion, and the *raison d'être* of all this commotion becomes manifest.

There is, in all probability, considerable justice in the contention that the drainage canal is a menace to public health; that general filtration of the city water is imperative; that private filters, seldom cleaned, are not germ-proof, but germ-cultivating; that milk is often open to suspicion. While we are pleased to state that so far, at least relatively, small injury has been done, there is a justifiable fear of greater consequences. Let the city fathers take heed of the warnings of the profession.

TYPHOID FEVER AND THE BACILLUS EBERTH.

The great revolution that is gaining such a sway now in our views on the relations between disease and the so-called specific pathogenic microbes is misunderstood by many. While it simply means that during the reign of the dogmatic bacteriology too much stress was laid on the causative function of the bacteria and that the importance of the quality of the soil of the organism to be invaded was neglected, it is greeted by the anti-microbists as a symptom of the ardently looked for descent of this young science. There will be time and opportunity enough for them to learn how much they are mistaken in this opinion.

The dictum, "where pathogenic bacteria, there disease," it is true, does not hold good any more; but the reverse "where infectious disease, there a specific, organic causative or determining agent," will stand forever. Like in other things, our increased knowledge has shown us that the intrinsic nature of phenomena is always much more complicated than at the first glance we thought it to be, which does not mean that a single factor bringing about the development of these phenomena has thereby become less essential.

For the sceptics the apparent impossibility of reproducing by the Eberth (typhoid) bacillus a pathologic picture or entity in animals corresponding exactly to the course of typhoid fever as it takes place in human beings has always been a very welcome argument. Aside from the fact that this assertion is not true and that under certain well-defined conditions animals after the infection with this bacterium can to the minutest details exhibit the typical picture with all the typical clinical symptoms and pathologic lesions (*Annales de l'Institut Pasteur*, XII., p. 829), there is absolutely no reason why such a reproduction should be necessary for the establishment of the specific nature of the germ. Whatever of justifiable doubt could have been entertained is dispersed by the specific blood reactions represented in Pfeiffer's phenomenon and Widal's reaction. Moreover practical proofs are on hand in those experiments conducted on a large scale in India and elsewhere, where the specific relation of the Eberth bacillus to typhoid fever was

demonstrated by human as well as animal inoculations. Given the susceptibility, the germ will produce in any human being the specific disease, and if properly looked for it will be found in any case of this disease. The formerly frequent instances where its demonstration in otherwise typical cases remained impossible, decrease from day to day with our improved methods, so that lately it has become easier to clear up doubtful cases by an examination of the feces at an earlier date than by other methods.

The absolutely specific changes taking place in the blood of typhoid fever patients (bactericidal in Pfeiffer's phenomenon, agglutinating in Widal's reaction) dispel any suspicion of an association of secondary nature. And the last link of the chain is forged by the protective action of the serum of animals immunized against the microbe.

Although the specific nature of the pathogenic function of the Eberth bacillus (endogenous toxins) precludes the possibility of influencing the disease when it is established, by any antitoxic therapy, bacteriology has done a great deal to assist in the diagnosis and in individual prophylaxis. The cultivation of the bacilli from the feces usually succeeds on the third or fourth day before either Widal or diazo-reaction put in an appearance. After the fifth day in 95 per cent. of the cases the Widal reaction when properly executed is absolutely decisive, if giving a positive result, while a negative result in the presence of other suspicious symptoms does not mean much. The writer of these lines has among his notes two cases where this reaction remained absent till the eighteenth and twenty-fourth day of the disease.

As to the prophylactic injections, we have already sufficient positive evidence for the assertion, that besides being perfectly harmless, they with certainty protect the individual for a long period against infection with the germ. In epidemics it ought to be widely resorted to. But we would again here make the point, that for a successful inoculation not the presence or absence of the Widal reaction must be made decisive, but only the positive result of Pfeiffer's experiment.

THE ENDOWMENT OF SCIENTIFIC CHAIRS IN MEDICAL SCHOOLS.

Medical education in the United States has been in the hands of the profession. It has not been the policy of this country to directly support higher education. The National Government has done little for the universities; in this respect it has been largely imitated by many of the States, though occasionally a State has departed from the traditional policy and established an agricultural college, which has subsequently grown into a university. With this exception, there has been little done by government for higher education, and almost nothing for medical education.

All medical colleges were established by the faculties, supported by them in whole or in part until the fees of the students supported the college. It is doubtful if more than one-half dozen schools in the United States have reached such a degree of popularity that they were able to pay salaries to the professors and meet their current expenses. In those that were the most successful, the salaries were very small. With an advanced curriculum this must change; there must now be an endowment of medical teaching. In the first half of the present century medical education was easily carried on by a half dozen men, who were reasonably equipped for their work if they had a lecture-room of sufficient size to contain the class and a dissecting-room. Medical education largely consisted in imparting the "principles;" the clinics, laboratories and exact scientific methods which have now come into vogue were then unknown. These have necessitated the enlargement of faculties and the devotion of certain men to the exclusive business of teaching. Adequate salaries must be provided for these men, if they are to continue their work. The laboratory teacher is, to a considerable extent, debarred from the practice of his profession, and his whole source of income must be derived from teaching. These changing conditions have added enormously to the expense of college management, and it is no longer possible for the fees of students to meet the entire expenses. If medical teaching is to be placed upon a higher plane and maintained there, it must be done mainly by the endowment of the scientific chairs in our medical schools.

RAILROAD ACCIDENTS IN ENGLAND.

In England there were 128 passengers killed on the railways during 1898 and 1,238 injured. This is an increase over the year before of thirteen killed, but the number injured was somewhat less. The exact proportion which these figures bear to the number of passengers carried cannot be ascertained, as it is impossible to estimate the number of journeys made by season ticket holders, who number over a million and a quarter. A fair estimate of the number of passengers carried would be about one killed to seven million, and one injured to about half a million.

These figures are not materially different from some that have been gathered in the United States. The same rule holds good in this country, that a larger number of railway employes were killed and injured than of passengers. Nearly one-half of this number is to be credited to switching operations. There should be a determined effort on the part of legislators to prevent this enormous number of deaths and injuries in the railway yards.

Current Medical Literature

DERMATOLOGY AND GENITO-URINARY DISEASES.

Syphilitic Leucoderma or Dungeon Scurvy.—J. A. SILVERMAN* reports a case which closely simulated anesthetic macular leprosy. The patient, a man of 52 years, contracted syphilis twenty-five years ago; specific treatment was taken at once and continued for many years. While in Cuba he was captured by insurgents and put into a dungeon with no flooring, no light and very little air; he was badly bitten by vermin. He was released, after eighty hours, in a critical condition; later he walked three hundred miles. For a number of months he was very ill, there was some loss of special senses, insomnia, complete anorexia; he was examined for leprosy, but was declared to be suffering from leucoderma, formerly called dungeon scurvy. Numerous cultures all showed negative results. The leucoderma is confined to the legs only, which also show old specific pigmentation. Photographs are given showing the distribution of the disease and the character of the lesion.

Traumatism of the Male Urethra, with Report of Two Cases.—HITCHCOCK.† The two cases reported resulted from severe blows upon the perineum. The rupture in both occurred in the bulbo-membranous portion of the urethra. In the first case, since the catheter could be passed easily, the expectant plan of treatment was used, on the assumption that the wound was not a deep one. Ultimately an operation was necessitated and performed. The second case was operated upon at once, and a catheter left *in situ* for four days. Both cases made uneventful recoveries. Operation should be done as soon as the physician has satisfied himself as to the existence of a complete laceration of the urethral wall. Increase in temperature, inability to pass a catheter, etc., will act as guides in the diagnosis. The sound should be passed from time to time if indicated during the rest of the patient's lifetime both for their bodily comfort and peace of mind.

Case of Rectoperineal Stone.—R. GUITERAS.‡ The patient, a male, 26 years old, had an acute attack of retention of urine when 8 years of age. The cause was attributed to a stone in the bladder, and a perineal lithotomy was performed relieving the retention but failing to find the calculus. After this the patient could pass no urine through the penile urethra, the entire amount escaping through the perineal opening. About the time of puberty a few drops of urine began to pass through his anterior urethra with each act of micturition. For three years he had on several occasions noticed a painful swelling in the perineum, lasting two or three days at a time and ending in a discharge of pus. He was suffering from an attack of urethritis and epididymitis when seen, and there was a heavy swelling in the perineum with a sinus opening from it, out of which pus was oozing and through which he emptied his bladder. Rectal examination revealed the presence of a stone about the size of an English walnut projecting an inch or more through the anterior wall. This was removed by an operation. It formed a complete wall between the rectum and urethra and was wedged in so tightly that no urine had entered the rectum during the time and no feces had entered the urethra. A number of subsequent operations were performed on the rectoperineal fistula, and the patient still had his urethroperineal fistula, which will be operated upon later.

*N. Y. Med. Jour., Nov. 18, 1899.
†Jour. A. M. A., Nov. 25, 1999.
‡Phila. Med. Jour., Nov. 25, 1899.

Dermatitis Following the Use of Orthoform.—G. E. DECKER* reports two cases in which the dressing of a slight injury with orthoform powder and bichloride gauze caused a dermatitis after ten days' use. The finger which had been injured became swollen, painful, with the entire epidermis undermined by small confluent blisters which contained a very sticky serous fluid. There was a peculiar odor like that of freshly baked bread, which continued as long as there was any of the serous discharge. In a few days the blisters spread to the rest of the hand and part of the body, especially the scrotum and legs. After two weeks the finger and hand became dry and the blisters disappeared from the body, the original wound healing at the same time. The second case was similar in every respect. In the first case after the orthoform was discontinued, the finger was cleansed with 3 per cent. carbolic acid solution and dressed with iodoform gauze. In the second case campho-phenique and acetanilid powder were used.

EYE, EAR, NOSE AND THROAT.

Nutrition of the Lens and Its Relation to Cataract Formation.—STRICKER.† The lens, unlike all other organs of the body, is devoid of blood vessels, lymphatics and nerves, and obtains its nourishment through osmosis from the fluid in which it is immersed. With each act of accommodation the fluid thus absorbed changes its position, is expressed, etc. When through age the lens has become less resilent, fissures are found in which the fluid stagnates, certain fibres are thus deprived of their nourishment, undergo degeneration, and the result is cataract. Posterior cortical cataract occurs when, through chororetinitis and retinitis pigmentosa, a defective nutritive material is produced. The lens fibres degenerate if they come in contact with the normal vitreous or aqueous; hence there must be something present there which in the normal eye is prevented from entering the capsu-

*N. Y. Med. Jour., Nov. 25, 1899.
†Jour. A. M. A., Nov. 25, 1899.

lar sac. This is demonstrated by the fact that cataract forms if the epithelial cells lining the anterior capsule are destroyed. The cataract of diabetes, albuminuria, etc., occurs because of a destruction of these cells resulting from an abnormal nutritive supply. Lamellar cataract occurs when nutritive disturbances are only temporary. The cause of hereditary cataract is probably to be sought in a reduced viability of germinal cells.

Hypertrophies in the Tonsillar Ring.—G. B. HAYDENBEYGH* describes the tonsillar ring as consisting of the faucial tonsils, the pharyngeal or Luschka's tonsil, the lingual tonsil, and completed by small cushions of lymphoid tissue about the orifices of the Eustachian tubes. The tendency toward the disappearance of the pharyngeal tonsil in the first few years of life and of the faucial tonsils at puberty as well as the first of their larger size in the embryo, strengthens the contention of their rudimentary and obsolete nature. Enlargement of the third tonsil, adenoid vegetations, is essentially a disease of childhood, though not confined to that period. Hypertrophies of the faucial tonsils have a greater tendency to continue into adult life. There is an hereditary element in the causation; it tends to occur in several members of the same family. The most frequent cause is repeated and neglected attacks of catarrhal inflammation of the nose and throat. The infectious diseases of childhood are also causes, and the condition is aggravated by the obstruction from acute rhinitis. Hypertrophy of the lingual tonsil is rarely met and is essentially a disease of adult life. Tonsillar hypertrophy may produce mouth-breathing, may lead to inability of mental application and is the primary cause of the most common ear diseases. The treatment of these hypertrophies is removal.

Goitre.—SCHAEFER.† In the embryo the thyroid gland has its origin from the hypoblastic layer; its epithelium is derived from the ventral buccopharyngeal wall. Murray maintains that this organ in man is the remnant of a secreting gland which emptied its product into the pharynx, but that through evolution the duct has been lost. The vesicles of the gland are filled with a colloid material produced by the lining cells. Bauman has derived from this secretion an extract called by him thyroidin, composed of three-tenths per cent. of iodin in combination with proteid. The author reviews the various kinds of medicinal treatment used in goitre, and claims from his own experience the best results from the use of iodin and iron tonics. Patients improve more rapidly under this treatment than under the use of the thyroid preparations. If within three months the goitre does not yield to this treatment, operation should be advised. Of the various operations that have been recommended—viz.: the interstitial injection of iodin, aspiration of cysts and injection of iodin, ligature of the blood vessels, exothyropexy, total resection of superior, middle and inferior cervical ganglia, and enucleation—the author prefers the latter. In this article seven cases are reported in which almost ideal results were obtained. Local anesthesia should be used where practicable, otherwise serious results may follow.

Infective Granulomata of Pharynx; Glanders.—MUSSON.* The case reported is of special interest because of its resemblance to sarcoma of the tonsils. The patient, a female, aged 54, presented two large tonsillar masses in the pharynx, as well as a soft, walnut-sized growth in the naso-pharynx. Microscopically the tissue resembled sarcoma. The growths were removed, but recurred readily. Two years later it was determined that the tumors were infectious granulomata produced by the bacillus mallei. Bacteriologic examination alone confirmed the diagnosis of glanders. The patient died ultimately of acute glanders.

A Case of Primary Nonpigmented Sarcoma of the Left Upper Lid.—C. A. VEASEY†. The patient was a man of 45 years of age. The growth had been observed first about four months before, and had been gradually increasing in size. At no time had there been pain, nor was there any history of injury. There was a small firm ovoidal growth extending upward and outward from near the middle of the lid margin about 12 mm. long and 9 mm. wide, closely resembling a chalazion except in color. It was adherent to the overlying skin, but was freely movable over the tarsus, and its color was comparable to that of well diluted claret. The tumor was dissected out without difficulty; the point of origin was in the subcutaneous muscular tissue overlying the tarsus. It was an exceedingly hard encapsulated solid growth of a light reddish color, and one section consisted of several lobules. Microscropically it was found to be a spindle-celled sarcoma. Brief reference is made to similar cases already reported in literature. There are in all about fifty cases recorded.

A Case of Multiple Laryngotracheal Stenosis.—HUBBARD.‡ In the case reported there is merely a vague suspicion of congenital syphilis. At the age of 14 the patient contracted a severe cold while skating, with a resulting laryngitis and broncho-pneumonia. After the acute symptoms subsided the dyspnea continued to increase. For more than a year she was emaciated and feeble, after which time she began to improve. The author saw her four years after the development of the malady. A cicatricial membrane wa discovered at the level of the vocal cords, closing the

*N. Y. Med. Rec., Nov. 25, 1899.
†Jour. A. M. A., Nov. 25, 1899.

*Jour. A. M. A., Nov. 25, 1899.
†Phila. Med. Jour., Nov. 25, 1899.
‡Jour. A. M. A., Nov. 25, 1899.

glottis almost completely. Upon making a thyrotomy a fibrous nodule was found filling the anterior half of the lumen below the vocal cords. This was incised, the cartilages adjusted and wired. Through the enlarged glottis a second stricture could be detected near bifurcation. Further operation, however, was not urged. The enlargement of the glottis resulted in permanent improvement.

Pemphigus of the Larynx and Mouth. — J. H. Bryan* reports a case of pemphigus chronicus vulgaris affecting only the mucous membrane of the larynx and mouth. The patient complained of indefinite sensations in the larynx for six months; she had frequent attacks, the principal sensation being that of a foreign substance in the larynx. Examination showed the nose, nasopharynx and pharynx in good condition, but a small white, membranous deposit, about one-quarter of an inch in diameter, was observed on the laryngeal surface of the right half of the epiglottis. This was detached and brought away on the cotton-tipped applicator, leaving the membrane beneath red, without any loss of substance, as is met with in the various forms of ulceration that affect mucous surfaces. Within four days the same symptoms were complained of, and examination showed a membrane of the same character and size on the left half of the laryngeal surface of the epiglottis. The seat of the former deposit looked perfectly normal. Microscopic examination of the membrane led to the belief that it was a case of pemphigus. The membrane showed a fibrinous deposit containing numerous round cells, but no epithelium; staining with Gram's method showed a large number of cocci, but no bacilli. A brief discussion is given of pemphigus in general.

Nasal and Aural Complications in Epidemic Influenza.—Snow.† Most of the headaches and cranial pains encountered in epidemic influenza are due to pressure in the nasal passage and pent-up secretions in the sinuses. The ethmoidal cells are most susceptible in these cases, but all may become affected. Differentiation of the causes of headache is not always possible. Ethmoidal affections are characterized by pain extending over the bridge of the nose and under the eye to the temple; frontal by deep supra-orbital pain; sphenoidal by deep-seated, splitting pain radiating toward the sides of the head and occiput upward; antral by a heavy load or dull ache in the cheek, radiating toward the outer angle of the eye, etc. Eustachian tube, middle ear and mastoid affections produce more characteristic symptoms. In the treatment of sinus affections one should endeavor to relieve first the intranasal congestion, thus offering better drainage to the sinuses.

*N. Y. Med. Jour., Nov. 25, 1899.
†Jour. A. M. A , Nov. 25, 1899.

GYNECOLOGY AND OBSTETRICS.

Preliminary Report of Anterior Transplantation of the Round Ligaments for Displacements of the Uterus.—Ferguson.* The incision is made in the median line, the rectus muscle retracted outward, and an incision is made through the transversalis fascia and peritoneum into the peritoneal cavity. The round ligament and a portion of the broad ligament are ligated and divided one inch from the origin. They are then fixed to the wound in the transversali. fascia and peritoneum. The recti muscles are then sutured with catgut—continuous suture. The author claims ideal results for this operation, because no adhesions can form as a result of it; the organ is free, capable of motion sufficient to accommodate itself to its surroundings; hernia cannot follow; pregnancy is not interfered with, etc.

Pregnancy Complicated by Uterine Fibroids.—H. C. Coe.† The rapidity of growth of a fibroid under the influence of pregnancy is in direct proportion to its more or less intimate relation to the uterus. A pedunculated subperitoneal growth may remain unchanged, while an interstitial tumor undergoes marked enlargement. A subserous fibromyoma situated in the lower uterine segment or displaced and impacted in the cul-de-sac may increase in size simply from obstruction to its circulation. The position of the tumor is therefore of no little importance. As regards the influence of the neoplasm on pregnancy, it may be said in general that it may proceed normally, even in connection with interstitial and impacted subserous growth. Intrauterine neoplasms are less apt to disturb the cause of pregnancy than to become a source of danger by reason of their tendency to undergo degenerative changes after delivery. Any fibroid in a young woman which gives rise to marked symptoms should be regarded as a positive contraindication to matrimony. Many patients with fibroids remain sterile, though others become pregnant under apparently impossible conditions. Pregnancy should not be interrupted if it is possible to prolong it without undue risk to the mother until the fetus is viable. An elective Porro operation to-day is attended with no more danger than a supravaginal amputation at the third or fourth month.

Surgical Treatment of Uterine Displacements Resulting from Laceration of the Pelvic Floor.—Fleming.‡ All retro-displacements do not demand radical treatment. Only those in which subjective symptoms can be traced to this cause should be operated. Ventro-suspension is at the present time the most popular procedure. It is indicated in those cases of retro-displacement complicated with unilateral or bilateral pelvic disease. But one incision is

*Jour. A. M. A., Nov. 18, 1899.
†N. Y. Med. Jour., Nov. 25, 1899.
‡Jour. A. M. A., Nov. 25, 1899

required, and the adnexa can be examined and removed if necessary through this incision. There seems to be no foundation for the objections raised against this operation as to the increased danger of abortion. Statistics at any rate do not bear them out. Alexander's operation, in which the round ligaments are used as guy ropes, is gradually becoming more popular. It is indicated in those cases in which there are no complications, such as tumors, adhesions, inflammation, etc., of the uterus and appendages. Vaginal fixation is impracticable, and there seems to be no justification for it. Its only advantage is the avoidance of a scar.

Prevention and Treatment of Cancer of the Uterus.—SMITH.* Heredity plays no role in the etiology of cancer. It is contagious, however, and probably produced by a microbe which flourishes only on tissues of low vitality. Cancer of the cervix almost invariably begins in the angle of a laceration. The author would prevent the occurrence of the disease through the operation recommended by Emmet, viz.: the removal of the cicatrix and repair of the laceration. He maintains that, through the performance of some five thousand such operations, he has greatly reduced the percentage of cancer of the cervix uteri. Radical operation performed as soon as the diagnosis is made, is the only rational treatment.

HYGIENE AND BACTERIOLOGY.

The Etiology of Scarlet Fever,—H. O. HALL,† in the course of twenty-five years' service in the library of the Surgeon General's office, in connection with the compilation of the "Index Catalogue," was led to make a somewhat extensive research into the literature on the subject of "Milk as a Cause of Disease," which revealed the following facts: 1. That, while scarlet fever occurs in epidemic form in all countries, especially among children, it does not occur in countries where cow's milk is not used as a food, or where children are raised on mother's milk only. 2. That in Japan and China, where cow's milk is not used as a food, scarlet fever is unknown, or very rare. 3. That in India, where cow's milk is used as a food, but where, as in Japan, children are nursed until three, four, and even six years old, scarlet fever is rare, if not unknown. 4. That in countries where goat's milk and ass's milk are used as a food, scarlet fever is unknown. 5. That epidemics of scarlet fever in London and elsewhere have been traced directly to the use of milk from certain cows affected with the teat-and-udder disease, and that milk had not been infected by coming in contact with the disease in man. 6. That certain diseases in the lower animals are coexistent with or precede or follow similar epidemics in the human race. These conclusions in regard to scarlet fever in its relation to cow's milk, arrived at after an entirely independent investigation, are identical with those of Dr. McQuestion in regard to consumption in its relation to cow's milk, from investigations made by him and published in the *Med. and Surg. Reporter*, April 29, 1893.

The Necessity for State Aid in Pulmonary Tuberculosis.—G. W. GOLER* makes a strong plea for State aid in consumption; for the suppression of other diseases more tragic in their course than tuberculosis the State spends hundreds of thousands of dollars yearly. For the insane public safety has demanded a hospital; for the epileptic public sentiment has demanded an asylum; both of these are maintained at enormous expense, while the consumptive, dangerous to himself, as shown by the large death rate, insidiously dangerous to relatives, friends, and society at large, is allowed to pursue his way uncared for as long as life and strength hold out. Special sanatoria, controlled by the State at comparatively small cost, should be furnished for incipient cases of tuberculosis, where quite 70 per cent. of cures could be realized. Such institutions offer hope for the future in preventive, curative, and educational work in tuberculosis.

INTERNAL MEDICINE.

Bubonic Plague at Oporto.—CALMETTE,† One of the members of the French Commission sent to Oporto to study the plague, in a lecture delivered before the Societé de Medicine Publique et D'Hygiene Professionelle, reported the results of his studies. The plague, he thinks, was carried to Oporto by rats. Clinically it appeared under two different forms; the commonest one was the classical one with buboes and the rarer one was the pneumonic form. Patients were admitted to the hospital as a rule three or four days after the beginning of the disease, and generally they were comatose, and if not as sick as this they were delirious, with injected eyes, and a special attitude in accordance with the location of the buboes; tongue tremulous, dry, with red borders. They all suffered a good deal and complained of very severe headache. If admitted at the beginning of the disease they were possessed of an overpowering fear; sometimes they made their escape and ran through the streets, to stop only when compelled to do so by the pain. It was observed that the buboes of the plague are exceedingly painful, the slightest touch or motion producing excruiating pains. In other cases we have pulmonary edema, with dyspnea, very irregular heart and dicrotic pulse. There are no abdominal symptoms as a rule, although we may find the mesenteric glands greatly enlarged. Sometimes the plague appeared clinically

*Jour. A. M. A., Nov. 25, 1899.
†N. Y. Med. Rec., Nov. 11, 1899.

*N. Y. Med. Rec., Nov. 18, 1899.
†La Presse Medicale, Oct. 28, 1899.

as a pneumonia with the initial chill, fever to 40°, cough, expectoration, etc., and by examining the sputum we find the microbe. At other times, besides the buboes, we find carbuncles; this is the so-called black plague. The microbe of the plague is found in the buboes, and in very severe cases in the blood of the patients as well. It is a small microbe, having the form of a short bacillus, rounded extremities, slightly oval, easily stained with anilin dyes, and has the peculiarity of staining more at the extremities than at the center. It is very easy of cultivation. After the discovery of the microbe a curative serum was sought after and finally produced. Before the use of the serum the mortality in Oporto was 43 per cent. After its use it was only 13 per cent. In some cases the blood of the patient examined before the injection would show as high as 32 colonies of microbes to the drop. Forty centimeters of serum were injected in the skin of the abdomen, and next day only two colonies were found. Another 40 centimeters were injected and next day the blood was free of microbes. The clinical effects of the injections were as follows: Two hours after the injection the temperature rises to 39, 39.8 or 40°. After 12 to 15 hours it begins to fall, reaching 38°, and remains at that for nearly a day. If the injections are stopped, the temperature again rises, and it was found that if patients were given two small injections a day temperature remained low. They came to the conclusion that as the plague is a septicemnia, they should not, as in diphtheria or tetanus, inject one dose of serum, but several doses a day to maintain the patient constantly under its influence, and not to stop until the temperature has been normal, or nearly so, for three or four days. Treatment should be commenced as early as possible. The serum itself is harmless. In one case, 320 centimeters were given to a woman, and in another case, 20 centimeters were injected into the veins, without bad results. The serum should be used also as a prophylactic agent. Of those persons injected at Oporto not one contracted the disease, and none showed any disagreeable effects. The immunity produced by it does not last more than 20 days.

Obstructive Growths of the Pylorus, with a Report of a Successful Case of Pylorectomy.—ALLABEN*. Of the various operations designed to relieve obstruction of pylorus, the author prefers pylorectomy when circumstances will permit of its being done. The mortality in these operations was, from 1881 to 1885, 61.4 per cent.; from 1886 to 1892 it was reduced to 34.3 per cent. Patients recovering from the operation live from one and one-half to eight years. The earlier the operation is performed the better the chances for recovery. The author reports an interesting case in which he resected about one-third of the stomach for carcinoma of the pylorus. The anastomosis with the duodenum was accomplished with a Murphy button. The patient recovered nicely from the operation, was able to be about, was gaining in weight, etc., when a sudden collapse occurred. The post-mortem revealed a large perforation of the transverse colon. Two strictures, produced through carcinomatous infiltration, were found, one at the hepatic, the other at the splenic flexure of the colon. The button was held tightly in the former. The author concludes that if the operation of pylorectomy be performed before obstructive symptoms manifest themselves and before the occurrence of metastasis, the immediate results will be as favorable as in any other abdominal work.

*Jour. A. M. A., Nov. 25, 1899.

NERVOUS AND MENTAL DISEASES.

On the Traumatic Origin of Paralysis Agitans.—C. LINOW.* Charcot was the first to call attention to the importance of trauma in paralysis agitans. The latest report is by Kraft Ebing, who in 110 cases found 7 in which trauma was the cause. The author quotes the following case to illustrate the traumatic origin of the disease: A carpenter, 60 years old, with no heredity and no specific history; in 1896, while engaged on some work, slipped and fell a distance of about 3 feet, upon the left arm; a dislocation of the humerus resulted; he recovered fully from this; five months afterwards tremor of the hand made its appearance. From this small beginning there developed in the course of a year or more the usual symptoms of paralysis agitans. The course of the disease was rather rapid; in three years after the accident the disease reached its full development. There is scarcely any doubt that the trauma was the direct cause of the disease. No neuropathic tendency existed in this case, and there was no general shock to the nervous system. The author inclines to the theory of Charcot and Hetzig, that the trauma causes an ascending neuritis, which spreads from the periphery to the central part and causes these symptoms of motor irritation.

Some Experimental Studies in Cerebral Localization.—G. A. TALBERT† has adopted the general method as laid down by Professor Ewald, with some modifications in concluding these experiments. Small dogs over one year old were used. After trephining there was screwed into the hole an ivory ring with an outer and inner threaded border and a square top in order to fit a trephine handle. In the center of the ring is screwed an ivory plug, through the center of which run two wires, ending in platinum knobs, so that when put in position they will act as electrodes resting on the surface of the brain. The details of the operation and method of attaching the wires of the battery are fully described, together with an account

*Berl. klin. Woch., Oct. 30, 1899.

†Phila. Med. Jour., Nov. 25, 1899.

of the experiments. The operations were confined mostly to the cruciatus region, the second great fold just above the anterior suprasylvian fissure, the seeing sphere, and some intermediate points that have been considered unirritable. The method employed enlarges the field for research, as it possesses peculiar advantages, such as having the animal under normal conditions and the opportunity for oft-repeated experiments in the same position, so that the work can be carried to a greater detail. As far as the observations have extended no unirritable zones were found in the healthy brain. Whatever was the result at first remained quite the same from day to day, with no variations save the necessity of stronger currents. As a rule the results on localization did not vary materially from what has been obtained by the older method.

An Epidemic of Intercostal Neuralgia (?).—T. F. REILLY* reports a series of cases of a disease that was similar in some respects to the classical zoster and neuralgia, but different from it in several important features. After a few hours of malaise and chilliness, uneasiness and later pain, manifested itself in the left hypochondriac region; the pain was continuous, of great severity, with frequent exacerbations. After two or three hours a profuse sweat appeared and the pain began to diminish. There was at the outset a slight rise of temperature. On the following day the paroxysm was repeated. On the second or third day a herpetic eruption usually appeared. Four paroxysms were the largest number observed; a sense of uneasiness, and occasionally pain, was felt in the affected region for a week or more. Fourteen such cases were observed within a period of five weeks. In four of the cases the herpetic eruption appeared along the course of the intercostal nerves in the painful region. In eight cases the herpes appeared on the face or mucous membranes. In two mild cases no herpetic eruption was seen. Pharyngitis, pruritis of the entire body, a small papular eruption distributed over the whole body, constipation and vomiting, were marked symptoms in some of the cases. Salol and phenacetin, with occasional doses of chlorodyne and morphin, were used. Strapping the affected side with rubber plaster gave relief at once, and a mustard plaster was also useful.

SURGERY.

The Pathogenesis of Appendicitis.—A. O. J. KELLY.† The factors that operate to render the appendix less resistant than other portions of the intestinal tract to the onslaughts of bacteria and other determining causes of inflammation are several. Of prime importance is the precarious blood supply of many appendices. In a limited number of cases alterations in the nerves supplying the appendix is of importance. Finally, the evidences of retrogression of the organ are not without significance. The factors that in the appendix give rise to increase in the virulence of the bacteria normally present in the intestine are such as interfere with thorough drainage of the organ. Defective drainage may supervene when the appendix is so situated that it cannot be readily emptied; when its lumen is constricted either externally by bands of cicatricial connective tissue, etc., or by cicatrices of its walls, or by obstructions within its lumen, or when the muscular coat is no longer capable of active peristalsis, certain anatomic and physiologic peculiarities of the appendix are of significance with reference to the question of drainage. Fecal concretions may occlude the lumen, or they may also by attrition cause erosions of the mucous membrane, and thus reduce the power of the organ to resist the attacks of bacteria or their toxins. It is because of the anatomic and physiologic peculiarities of the appendix that factors, innocuous in the intestine, or morbific agents capable of being successfully counteracted by the physiologic activities of the intestine, become in the appendix of heightened virulence and engender disastrous consequences.

A Review of the History and Literature of Appendicitis.—G. M. EDEBOHLS* gives a historical review of the subject of appendicitis, the notes being arranged under the following headings: Nomenclature, General Historical Data, Surgery of Appendicitis, Anatomy of the Vermiform Appendix, Etiology of Appendicitis, Pathology of Appendicitis, Foreign Bodies in the Appendix, Pathologic Conditions Other Than Imflammation Affecting the Appendix, Bacteriology of the Appendix, Complications of Appendicitis, Herniæ Containing the Appendix, Appendicitis Associated With Diseased Conditions of the Pelvic Organs, Appendicitis Complicating Pregnancy, Labor and the Puerperal State, the Diagnosis of Appendicitis, the Medical Treatment of Appendicitis, the Surgical Treatment of Appendicitis, Exploratory Puncture, Left-Sided Appendicitis, Surgery of the Appendix, Excision of the Appendix, the Technics of Appendicectomy, Appedicectomy for Acute Perforative or Gangrenous Appendicitis, the Incision in Acute Appendicitis, the Incision in Chronic Appendicitis, Technics of the Stump, Septic Peritonitis Drainage, Accidents, Statistical. The vast literature embraces more than twenty-five hundred journal articles, dissertations, and of books. A complete bibliography, prepared by Edebohls, may be found in the New York Academy of Medicine. A bibliography of three hundred and seventy-six references is appended, which probably includes all of real value that has been published on the subject of appendicitis.

*N. Y. Med. Rec., Nov. 25, 1899.

*Phila. Med. Jour., Nov. 18 and 25, 1899.

*N. Y. Med. Rec., Nov. 25, 1899.

Pamphlets Received

Brain Tumor Simulated by Anæmia, by Hugh T. Patrick, M.D. (Reprint from *Journal Nervous and Mental Diseases.*)

The Sphere of Laryngology, by Wm. E. Casselberry, M.D. (Reprint from *New York Medical Journal.*)

Injury and Disease; A Clinical Study, by Gilbert Geoffrey Cottam, M.D. (Reprint from *The Railway Surgoon.*)

The New Local Anesthetic Nirvanin, by August Luxenberger, M.D. (Reprint from *Philadelphia Medical Journal.*)

Deformities of the Septum Narium; Their Classification with a View to Treatment, by Wm. E. Casselberry, M.D. (Reprint from *Journal American Medical Association.*)

Alexander's Operation, by Charles P. Noble, M.D. (Reprint from *American Genecological and Obstetrical Journal.*)

True Conservatism in Gynecology, by Charles P. Noble, M.D. (Reprint from *Pennsylvania Medical Journal.*)

The History of the Early Operations for Fibroid Tumors, by Charles P. Noble, M.D. (Reprint from *American Journal of Obstetrics.*)

Section on Laryngology and Otology, Chairman's Address, by Emil Mayer, M.D. (Reprint from *Journal American Medical Association.*)

Reflex Cough, by George L. Richards, M.D. (Reprint from *Medical Record.*)

The Modern Treatment of Sprains of the Ankle Joint, by Gilbert G. Cottam, M.D. (Reprint from the *Railway Surgeon.*)

Contused and Lacerated Wounds, by Gilbert Goeffrey Cottam, M.D. (Reprint from *Railway Surgeon.*)

Acute Gastro-Intestinal Affections in Children, by George M. Wells, M.D. (Reprint from *Medical Sentinal.*)

Progress in Gynecology, by Charles P. Noble, M.D. (Reprint from *Maryland Medical Journal.*)

Neurasthenia, by John Punton, M.D. (Reprint from *Medical Index-Lancet.*)

The Medical Treatment of Movable Kidney, by Alfred Stengel, M.D. (Reprint from *University Medical Magazine.*)

Symposium on the Pathology of the Diseases of the Cardio-Vascular System. The Blood in Diseases of the Cardio-Vascular System, by Alfred Stengel, M.D. (Reprint from Proceedings of the Pathological Society of Philadelphia).

Gastroptosis; Report of a Case in which a New Operation was Undertaken and the Patient Greatly Improved, by Alfred Stengel, M.D., and Henry D. Beyea, M.D. (Reprint from *American Journal of the Medical Sciences*).

Practical Therapeutics.

A Plea for the Further Use of Carbolic Acid.—F. J. ADAMS* advocates the more extensive use of carbolic acid as a bactericide. The method used with excellent results is as follows: Liquify the pure crystals and apply the fluid to the surface with a camel's-hair brush; as soon as the surface appears white, apply pure alcohol in copious quantities. This treatment has been used in all cases of cellulitis, felons, about ulcers with widespread exudate, carbuncles, erysipelas, and any and all inflammatory conditions where streptococci and staphylococci are present. In a case of gonorrheal vaginitis, a tampon was saturated with pure acid, inserted into the vagina and withdrawn after thirty seconds, when the parts were douched with one quart of alcohol. The labia were treated similarly previously. The following day the discharge was slight and the swelling and inflamed area had subsided. A second treatment effected a complete cure. A number of cases are cited showing the efficiency of the treatment and the effect of alcohol as an antidote to carbolic acid, taken with suicidal intent.

Sanatoria for Tuberculosis.—Some of the more important sanatoria for the treatment of consumption are those in the Adirondacks, founded in 1884. Falkenstein, the oldest, began operations in 1876, is not far from the city of Frankfort, Germany. One of the most successful is that of Nordrach, situated in the Black Forest, about thirty miles from Strasburg. It was established in 1889 by Dr. Otto Walther. The success achieved at Nordrach has been most satisfactory. The principles there employed are an absolute open air life for every case in all weathers and seasons, by day and by night. A regular course of feeding, even over-feeding from the patient's point of view, with a rich and varied diet, including much meat and milk, more fatty and carbohydrate food and little alcohol. A regular system of exercise on the hillsides is enjoined, which must always fall short of dyspnea and fatigue. These are combined with a maximum amount of mental and physical rest. The co-ordination of all these details is directly under the care of the physician, and his effort is to secure regular habits of life in every case. The principal differences in the sanatorium treatment relates to the amount of exercise. At Nordrach a large amount is insisted upon, while at others practically a rest cure in the open air is enjoined. It is difficult to lay down an exact rule which shall fit all patients, for some do not do well with exercise, while others are very greatly benefited by it. In all the sanatoria a liberal diet is insisted upon, the only difference being that in some the food is taken in small quantities at frequent intervals and in others large quantities are given.

*N. Y. Med. Jour., Nov. 25, 1899.

Jenner's Immortal Discovery.—We haye before us the advance proofs of an article upon the propagation of vaccine, containing a description of the methods pursued by Parke Davis & Co. in preparing their vaccine. The following description is both instructive and interesting: The healthy heifer about eighteen months old is used. The animal is first carefully examined by the veterinarian, Dr. E. A. A. Grange (formerly Michigan State Veterinarian), for any evidence of disease, external or internal. A

Grinding Vaccine with Glycerine.—Emusifying Apparatus to the left.

ringworm on a heifer is enough to condemn it. The tuberculin test is applied in every case, and any heifer which exhibits a suspicious rise of temperature is rejected. When the animal is finally pronounced to be in perfect health, it is scrubbed from head to foot and taken into the operating room—a large, high chamber, with cement floor and varnished walls susceptible of ready cleansing and disinfection. Here, with the aid of a convenient apparatus, the heifer is placed on its back. The abdominal surface is thoroughly lathered, washed, and shaved, and is then scrubbed once more with sterilized water; it is then washed thoroughly with a disinfectant solution; and after a final washing with sterilized water, the abdomen is ready for scarification. This is performed quickly with sterilized instruments. The "seed" vaccine is applied, rubbed in thoroughly, and permitted to dry. The "field" of operation is then covered with an aseptic and impenetrable cement which effectually excludes germs. Over the cement is placed a layer of absorbent cotton, and over the cotton a protective bandage. The heifers are now ready for the propagating room. After about five days the heifer returns to the operating room. The hoofs are carefully cleansed, and the various cleansing operations described before as preliminaries to inoculation are now repeated. The dressings are removed; the whole field of operation is cleansed with sterilized water and disinfectant solution; and the external scab is removed and destroyed. The pulp of the vaccine vesicles with exuding serum is now carefully collected with sterilized spoon curettes and placed in sterilized containers filled with glycerin. The vaccine is now brought to our biological laboratory, and is run through sterilized grinders until a homogeneous mixture is obtained. The requisite amount of diluent is added, and the mixture is shaken for several hours in a specially devised shaking apparatus in order to make a perfect emulsion. The vaccine is now examined bacteriologically and physiologically. Every single parcel of vaccine is tested on heifers before it is permitted to go out on the market, and in the great majority of cases it is tested for activity on children as well. If the test requirements are fulfilled, it is filled by skilled operatives into sterilized tubes, in an aseptic room especially designed for the purpose. Each tube is examined to satisfy that both ends are absolutely closed. The sealed tubes are at once placed in a refrigerator and kept there until needed for orders.

Gelatin Serum as a Hemostatic.—Gelatin serum for hypodermic injection as a hemostatic is freely prescribed on the continent. It is also used as a local application. If injected beneath the skin, a one or two per cent. solution is generally employed. This may be prepared as follows:

Finest white gelatin	10 to 20 gms.
Sodiom chlorid	5 "
Pure sodium carbonate	2 "
Distilled water, q. s	1,000 "

The solution should be filtered and carefully sterilized. For local application a stronger solution may be employed, composed of:

Sodium chlorid	10 gms.
Pure white gelatin	10 "
Distilled water, q. s	500 "

In preparing the solution, the gelatin is broken into small pieces and dissolved in the saline solution with gentle heat. A Chardon filter should be employed which has been previously washed in hot distilled water. The filtrate is allowed to flow into sterilized flasks, which are then plugged with cotton wool and sterilized in an autoclave at a temperature of 100° C. If a temperature greater than 105° C. be employed, the blood coagulating power of the gelatin is destroyed.

For Sale.—A lucrative eye, ear, nose and throat practice in a prosperous western city. Purchaser should be an expert operator and refractionist. Full information on application to

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